

SEQUENCE LISTING

<110> The University of North Carolina
Threadgill, David W
Lee, Daekee

<120> MODULATION OF EPIDERMAL GROWTH FACTOR HETERODIMER ACTIVITY

<130> 421/99 PCT

<150> US 60/545,185

<151> 2004-02-17

<160> 21

<170> PatentIn version 3.3

<210> 1

<211> 5616

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (247)..(3879)

<400> 1.

ccccggcgca gcgcgccgc agcagcctcc gccccccgca cgggtgtgagc gcccgacgcg	60
gccgaggcgg ccggagtccc gagctagccc cggcggcgc cgcgcgccag accggacgac	120
agggcacctc gtcggcgctcc gcccgagtcc ccgcctcgcc gccaacgccca caaccaccgc	180
gcacggcccc ctgactccgt ccagtattga tcgggagcagc cggagcgcgc tcttcgggga	240
gcagcg atg cga ccc tcc ggg acg gcc ggg gca gcg ctc ctg gcg ctg	288
Met Arg Pro Ser Gly Thr Ala Gly Ala Ala Leu Leu Ala Leu	
1 5 10	
ctg gct gcg ctc tgc ccg gcg agt cgg gct ctg gag gaa aag aaa gtt	336
Leu Ala Ala Leu Cys Pro Ala Ser Arg Ala Leu Glu Glu Lys Lys Val	
15 20 25 30	
tgc caa ggc acg agt aac aag ctc acg cag ttg ggc act ttt gaa gat	384
Cys Gln Gly Thr Ser Asn Lys Leu Thr Gln Leu Gly Thr Phe Glu Asp	
35 40 45	
cat ttt ctc agc ctc cag agg atg ttc aat aac tgt gag gtg gtc ctt	432
His Phe Leu Ser Leu Gln Arg Met Phe Asn Asn Cys Glu Val Val Leu	
50 55 60	
ggg aat ttg gaa att acc tat gtg cag agg aat tat gat ctt tcc ttc	480
Gly Asn Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe	
65 70 75	
tta aag acc atc cag gag gtg gct ggt tat gtc ctc att gcc ctc aac	528
Leu Lys Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn	
80 85 90	
aca gtg gag cga att cct ttg gaa aac ctg cag atc atc aga gga aat	576
Thr Val Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn	
95 100 105 110	
atg tac tac gaa aat tcc tat gcc tta gca gtc tta tct aac tat gat	624
Met Tyr Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp	
115 120 125	

gca aat aaa acc gga ctg aag gag ctg ccc atg aga aat tta cag gaa Ala Asn Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu 130 135 140	672
atc ctg cat ggc gcc gtg cgg ttc agc aac aac cct gcc ctg tgc aac Ile Leu His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn 145 150 155	720
gtg gag agc atc cag tgg cgg gac ata gtc agc agt gac ttt ctc agc Val Glu Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser 160 165 170	768
aac atg tcg atg gac ttc cag aac cac ctg ggc agc tgc caa aag tgt Asn Met Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys 175 180 185 190	816
gat cca agc tgt ccc aat ggg agc tgc tgg ggt gca gga gag gag aac Asp Pro Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Glu Asn 195 200 205	864
tgc cag aaa ctg acc aaa atc atc tgt gcc cag cag tgc tcc ggg cgc Cys Gln Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser Gly Arg 210 215 220	912
tgc cgt ggc aag tcc ccc agt gac tgc tgc cac aac cag tgt gct gca Cys Arg Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala 225 230 235	960
ggc tgc aca ggc ccc cgg gag agc gac tgc ctg gtc tgc cgc aaa ttc Gly Cys Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Arg Lys Phe 240 245 250	1008
cga gac gaa gcc acg tgc aag gac acc tgc ccc cca ctc atg ctc tac Arg Asp Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr 255 260 265 270	1056
aac ccc acc acg tac cag atg gat gtg aac ccc gag ggc aaa tac agc Asn Pro Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser 275 280 285	1104
ttt ggt gcc acc tgc gtg aag aag tgt ccc cgt aat tat gtg gtg aca Phe Gly Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr 290 295 300	1152
gat cac ggc tcg tgc gtc cga gcc tgt ggg gcc gac agc tat gag atg Asp His Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met 305 310 315	1200
gag gaa gac ggc gtc cgc aag tgt aag aag tgc gaa ggg cct tgc cgc Glu Glu Asp Gly Val Arg Lys Cys Lys Lys Cys Glu Gly Pro Cys Arg 320 325 330	1248
aaa gtg tgt aac gga ata ggt att ggt gaa ttt aaa gac tca ctc tcc Lys Val Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Ser Leu Ser 335 340 345 350	1296
ata aat gct acg aat att aaa cac ttc aaa aac tgc acc tcc atc agt Ile Asn Ala Thr Asn Ile Lys His Phe Lys Asn Cys Thr Ser Ile Ser 355 360 365	1344
ggc gat ctc cac atc ctg ccg gtg gca ttt agg ggt gac tcc ttc aca Gly Asp Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr 370 375 380	1392
cat act cct cct ctg gat cca cag gaa ctg gat att ctg aaa acc gta His Thr Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val 385 390 395	1440

aag gaa atc aca ggg ttt ttg ctg att cag gct tgg cct gaa aac agg Lys Glu Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg 400 405 410	1488
acg gac ctc cat gcc ttt gag aac cta gaa atc ata cgc ggc agg acc Thr Asp Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr 415 420 425 430	1536
aag caa cat ggt cag ttt tct ctt gca gtc gtc agc ctg aac ata aca Lys Gln His Gly Gln Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr 435 440 445	1584
tcc ttg gga tta cgc tcc ctc aag gag ata agt gat gga gat gtg ata Ser Leu Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile 450 455 460	1632
att tca gga aac aaa aat ttg tgc tat gca aat aca ata aac tgg aaa Ile Ser Gly Asn Lys Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys 465 470 475	1680
aaa ctg ttt ggg acc tcc ggt cag aaa acc aaa att ata agc aac aga Lys Leu Phe Gly Thr Ser Gly Gln Lys Thr Lys Ile Ile Ser Asn Arg 480 485 490	1728
ggg gaa aac agc tgc aag gcc aca ggc cag gtc tgc cat gcc ttg tgc Gly Glu Asn Ser Cys Lys Ala Thr Gly Gln Val Cys His Ala Leu Cys 495 500 505 510	1776
tcc ccc gag ggc tgc tgg ggc ccg gag ccc agg gac tgc gtc tct tgc Ser Pro Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys 515 520 525	1824
cgg aat gtc agc cga ggc agg gaa tgc gtg gac aag tgc aac ctt ctg Arg Asn Val Ser Arg Gly Arg Glu Cys Val Asp Lys Cys Asn Leu Leu 530 535 540	1872
gag ggt gag cca agg gag ttt gtg gag aac tct gag tgc ata cag tgc Glu Gly Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys 545 550 555	1920
cac cca gag tgc ctg cct cag gcc atg aac atc acc tgc aca gga cgg His Pro Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg 560 565 570	1968
gga cca gac aac tgt atc cag tgt gcc cac tac att gac ggc ccc cac Gly Pro Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His 575 580 585 590	2016
tgc gtc aag acc tgc ccg gca gga gtc atg gga gaa aac aac acc ctg Cys Val Lys Thr Cys Pro Ala Gly Val Met Gly Glu Asn Asn Thr Leu 595 600 605	2064
gtc tgg aag tac gca gac gcc ggc cat gtg tgc cac ctg tgc cat cca Val Trp Lys Tyr Ala Asp Ala Gly His Val Cys His Leu Cys His Pro 610 615 620	2112
aac tgc acc tac gga tgc act ggg cca ggt ctt gaa ggc tgt cca acg Asn Cys Thr Tyr Gly Cys Thr Gly Pro Gly Leu Glu Gly Cys Pro Thr 625 630 635	2160
aat ggg cct aag atc ccg tcc atc gcc act ggg atg gtg ggg gcc ctc Asn Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Met Val Gly Ala Leu 640 645 650	2208
ctc ttg ctg ctg gtg gtg gcc ctg ggg atc ggc ctc ttc atg cga agg Leu Leu Leu Leu Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg 655 660 665 670	2256

cgc cac atc gtt cgg aag cgc acg ctg cgg agg ctg ctg cag gag agg Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg 675 680 685	2304
gag ctt gtg gag cct ctt aca ccc agt gga gaa gct ccc aac caa gct Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala 690 695 700	2352
ctc ttg agg atc ttg aag gaa act gaa ttc aaa aag atc aaa gtg ctg Leu Leu Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu 705 710 715	2400
ggc tcc ggt gcg ttc ggc acg gtg tat aag gga ctc tgg atc cca gaa Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu 720 725 730	2448
ggg gag aaa gtt aaa att ccc gtc gct atc aag gaa tta aga gaa gca Gly Glu Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala 735 740 745 750	2496
aca tct ccg aaa gcc aac aag gaa atc ctc gat gaa gcc tac gtg atg Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met 755 760 765	2544
gcc agc gtg gac aac ccc cac gtg tgc cgc ctg ctg ggc atc tgc ctc Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu 770 775 780	2592
acc tcc acc gtg cag ctc atc acg cag ctc atg ccc ttc ggc tgc ctc Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Phe Gly Cys Leu 785 790 795	2640
ctg gac tat gtc cgg gaa cac aaa gac aat att ggc tcc cag tac ctg Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu 800 805 810	2688
ctc aac tgg tgt gtg cag atc gca aag ggc atg aac tac ttg gag gac Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp 815 820 825 830	2736
cgt cgc ttg gtg cac cgc gac ctg gca gcc agg aac gta ctg gtg aaa Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys 835 840 845	2784
aca ccg cag cat gtc aag atc aca gat ttt ggg ctg gcc aaa ctg ctg Thr Pro Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu 850 855 860	2832
ggg ggc gaa gag aaa gaa tac cat gca gaa gga ggc aaa gtg cct atc Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile 865 870 875	2880
aag tgg atg gca ttg gaa tca att tta cac aga atc tat acc cac cag Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln 880 885 890	2928
agt gat gtc tgg agc tac ggg gtg acc gtt tgg gag ttg atg acc ttt Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe 895 900 905 910	2976
gga tcc aag cca tat gac gga atc cct gcc agc gag atc tcc tcc atc Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Glu Ile Ser Ser Ile 915 920 925	3024
ctg gag aaa gga gaa cgc ctc cct cag cca ccc ata tgt acc atc gat Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp 930 935 940	3072

gtc tac atg atc atg gtc aag tgc tgg atg ata gac gca gat agt cgc 3120
 Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg
 945 950 955

cca aag ttc cgt gag ttg atc atc gaa ttc tcc aaa atg gcc cga gac 3168
 Pro Lys Phe Arg Glu Leu Ile Ile Glu Phe Ser Lys Met Ala Arg Asp
 960 965 970

ccc cag cgc tac ctt gtc att cag ggg gat gaa aga atg cat ttg cca 3216
 Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro
 975 980 985 990

agt cct aca gac tcc aac ttc tac cgt gcc ctg atg gat gaa gaa gac 3264
 Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp
 995 1000 1005

atg gac gac gtg gtg gat gcc gac gag tac ctc atc cca cag cag 3309
 Met Asp Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln
 1010 1015 1020

ggc ttc ttc agc agc ccc tcc acg tca cgg act ccc ctc ctg agc 3354
 Gly Phe Phe Ser Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser
 1025 1030 1035

tct ctg agt gca acc agc aac aat tcc acc gtg gct tgc att gat 3399
 Ser Leu Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asp
 1040 1045 1050

aga aat ggg ctg caa agc tgt ccc atc aag gaa gac agc ttc ttg 3444
 Arg Asn Gly Leu Gln Ser Cys Pro Ile Lys Glu Asp Ser Phe Leu
 1055 1060 1065

cag cga tac agc tca gac ccc aca ggc gcc ttg act gag gac agc 3489
 Gln Arg Tyr Ser Ser Asp Pro Thr Gly Ala Leu Thr Glu Asp Ser
 1070 1075 1080

ata gac gac acc ttc ctc cca gtg cct gaa tac ata aac cag tcc 3534
 Ile Asp Asp Thr Phe Leu Pro Val Pro Glu Tyr Ile Asn Gln Ser
 1085 1090 1095

gtt ccc aaa agg ccc gct ggc tct gtg cag aat cct gtc tat cac 3579
 Val Pro Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His
 1100 1105 1110

aat cag cct ctg aac ccc gcg ccc agc aga gac cca cac tac cag 3624
 Asn Gln Pro Leu Asn Pro Ala Pro Ser Arg Asp Pro His Tyr Gln
 1115 1120 1125

gac ccc cac agc act gca gtg ggc aac ccc gag tat ctc aac act 3669
 Asp Pro His Ser Thr Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr
 1130 1135 1140

gtc cag ccc acc tgt gtc aac agc aca ttc gac agc cct gcc cac 3714
 Val Gln Pro Thr Cys Val Asn Ser Thr Phe Asp Ser Pro Ala His
 1145 1150 1155

tgg gcc cag aaa ggc agc cac caa att agc ctg gac aac cct gac 3759
 Trp Ala Gln Lys Gly Ser His Gln Ile Ser Leu Asp Asn Pro Asp
 1160 1165 1170

tac cag cag gac ttc ttt ccc aag gaa gcc aag cca aat ggc atc 3804
 Tyr Gln Gln Asp Phe Phe Pro Lys Glu Ala Lys Pro Asn Gly Ile
 1175 1180 1185

ttt aag ggc tcc aca gct gaa aat gca gaa tac cta agg gtc gcg 3849
 Phe Lys Gly Ser Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val Ala
 1190 1195 1200

cca caa agc agt gaa ttt att gga gca tga ccacggagga tagtatgagc 3899
 Pro Gln Ser Ser Glu Phe Ile Gly Ala
 1205 1210

cctaaaaatc cagactcttt cgatacccag gaccaagcca cagcagggtcc tccatcccaa 3959
 cagccatgcc cgcattagct cttagaccca cagactgggt ttgcaacggt tacaccgact 4019
 agccaggaag tacttccacc tcgggcacat tttgggaagt tgcattcctt tgtcttcaaa 4079
 ctgtgaagca ttacagaaa cgcattccagc aagaatattg tccctttgag cagaaattta 4139
 tctttcaaag aggtatat ttgaaaaaaa aaaagtatat gtgaggattt ttattgattg 4199
 gggatcttgg agtttttcat tgctgctatt gatttttact tcaatgggct cttccaacaa 4259
 ggaagaagct tgctggtagc acttgctacc ctgagttcat ccaggcccaa ctgtgagcaa 4319
 ggagcacaag ccacaagtct tccagaggat gcttgattcc agtgggtctg cttcaaggct 4379
 tccactgcaa aacactaaag atccaagaag gccttcattg cccagcagg ccggatcggg 4439
 actgtatcaa gtcattggcag gtacagtagg ataagccact ctgtcccttc ctgggcaaa 4499
 aagaaacgga ggggatggaa ttcttcctta gacttacttt tgtaaaaatg tccccacggg 4559
 acttactccc cactgatgga ccagtgggtt ccagtcatga gcgttagact gacttgtttg 4619
 tcttccattc cattgttttg aaactcagta tgctgccctt gtcttgctgt catgaaatca 4679
 gcaagagagg atgacacatc aaataataac tcggattcca gccacattg gattcatcag 4739
 catttggaac aatagccac agctgagaat gtggaatacc taaggatagc accgcttttg 4799
 ttctcgcaa aacgtatctc ctaatttgag gctcagatga aatgcatcag gtcctttggg 4859
 gcatagatca gaagactaca aaaatgaagc tgctctgaaa tctcctttag ccatacccc 4919
 aaccccccaa aattagtttg tggtacttat ggaagatagt tttctccttt tacttcactt 4979
 caaaagcttt ttactcaaag agtatatggt ccctccaggc cagctgcccc caaacccctt 5039
 ccttacgctt tgtcacacaa aaagtgtctc tgccttgagt catctattca agcacttaca 5099
 gctctggcca caacaggga ttttacaggt gcgaatgaca gtagcattat gagtagtgtg 5159
 gaattcaggc agtaaatatg aaactagggt ttgaaattga taatgctttc acaacatttg 5219
 cagatgtttt agaaggaaaa aagttccttc ctaaaaataat ttctctacaa ttggaagatt 5279
 ggaagattca gctagttagg agcccacctt ttttcctaatt ctgtgtgtgc cctgtaacct 5339
 gactgggtta cagcagtcct ttgtaaacag tggttttaaac tctcctagtc aatatccacc 5399
 ccatccaatt tatcaaggaa gaaatgggtc agaaaatatt ttcagcctac agttatgttc 5459
 agtcacacac acatacaaaa tgttcctttt gcttttaaaag taatttttga ctcccagatc 5519
 agtcagagcc cctacagcat tgtaagaaa gtatttgatt tttgtctcaa tgaaaataaa 5579
 actatattca tttccactct aaaaaaaaaa aaaaaaa 5616

<210> 2
 <211> 1210
 <212> PRT
 <213> Homo sapiens

<400> 2

Met Arg Pro Ser Gly Thr Ala Gly Ala Ala Leu Leu Ala Leu Leu Ala
 1 5 10 15

Ala Leu Cys Pro Ala Ser Arg Ala Leu Glu Glu Lys Lys Val Cys Gln
 20 25 30

Gly Thr Ser Asn Lys Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe
 35 40 45

Leu Ser Leu Gln Arg Met Phe Asn Asn Cys Glu Val Val Leu Gly Asn
 50 55 60

Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys
 65 70 75 80

Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val
 85 90 95

Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Met Tyr
 100 105 110

Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp Ala Asn
 115 120 125

Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu
 130 135 140

His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn Val Glu
 145 150 155 160

Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser Asn Met
 165 170 175

Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys Asp Pro
 180 185 190

Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Glu Asn Cys Gln
 195 200 205

Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser Gly Arg Cys Arg
 210 215 220

Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys
 225 230 235 240

Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Arg Lys Phe Arg Asp
 245 250 255

Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro
 260 265 270

Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly
 275 280 285

Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His
 290 295 300

Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met Glu Glu
 305 310 315 320

Asp Gly Val Arg Lys Cys Lys Lys Cys Glu Gly Pro Cys Arg Lys Val
 325 330 335

Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Ser Leu Ser Ile Asn
 340 345 350

Ala Thr Asn Ile Lys His Phe Lys Asn Cys Thr Ser Ile Ser Gly Asp
 355 360 365

Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr His Thr
 370 375 380

Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val Lys Glu
 385 390 395 400

Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg Thr Asp
 405 410 415

Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln
 420 425 430

His Gly Gln Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr Ser Leu
 435 440 445

Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser
 450 455 460

Gly Asn Lys Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu
 465 470 475 480

Phe Gly Thr Ser Gly Gln Lys Thr Lys Ile Ile Ser Asn Arg Gly Glu
 485 490 495

Asn Ser Cys Lys Ala Thr Gly Gln Val Cys His Ala Leu Cys Ser Pro
 500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Arg Asn
 515 520 525

Val Ser Arg Gly Arg Glu Cys Val Asp Lys Cys Asn Leu Leu Glu Gly
 530 535 540

Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro
 545 550 555 560

Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro
 565 570 575

Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val
 580 585 590

Lys Thr Cys Pro Ala Gly Val Met Gly Glu Asn Asn Thr Leu Val Trp
 595 600 605

Lys Tyr Ala Asp Ala Gly His Val Cys His Leu Cys His Pro Asn Cys
 610 615 620

Thr Tyr Gly Cys Thr Gly Pro Gly Leu Glu Gly Cys Pro Thr Asn Gly
 625 630 635 640

Pro Lys Ile Pro Ser Ile Ala Thr Gly Met Val Gly Ala Leu Leu Leu
 645 650 655

Leu Leu Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg Arg His
 660 665 670

Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg Glu Leu
 675 680 685

Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala Leu Leu
 690 695 700

Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu Gly Ser
 705 710 715 720

Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu Gly Glu
 725 730 735

Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser
 740 745 750

Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met Ala Ser
 755 760 765

Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu Thr Ser
 770 775 780

Thr Val Gln Leu Ile Thr Gln Leu Met Pro Phe Gly Cys Leu Leu Asp
 785 790 795 800

Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn
 805 810 815
 Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp Arg Arg
 820 825 830
 Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Thr Pro
 835 840 845
 Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu Gly Ala
 850 855 860
 Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile Lys Trp
 865 870 875 880
 Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln Ser Asp
 885 890 895
 Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ser
 900 905 910
 Lys Pro Tyr Asp Gly Ile Pro Ala Ser Glu Ile Ser Ser Ile Leu Glu
 915 920 925
 Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr
 930 935 940
 Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys
 945 950 955 960
 Phe Arg Glu Leu Ile Ile Glu Phe Ser Lys Met Ala Arg Asp Pro Gln
 965 970 975
 Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro Ser Pro
 980 985 990
 Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp Met Asp
 995 1000 1005
 Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln Gly Phe
 1010 1015 1020
 Phe Ser Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser Ser Leu
 1025 1030 1035
 Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asp Arg Asn
 1040 1045 1050
 Gly Leu Gln Ser Cys Pro Ile Lys Glu Asp Ser Phe Leu Gln Arg
 1055 1060 1065

Tyr Ser Ser Asp Pro Thr Gly Ala Leu Thr Glu Asp Ser Ile Asp
1070 1075 1080

Asp Thr Phe Leu Pro Val Pro Glu Tyr Ile Asn Gln Ser Val Pro
1085 1090 1095

Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln
1100 1105 1110

Pro Leu Asn Pro Ala Pro Ser Arg Asp Pro His Tyr Gln Asp Pro
1115 1120 1125

His Ser Thr Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Val Gln
1130 1135 1140

Pro Thr Cys Val Asn Ser Thr Phe Asp Ser Pro Ala His Trp Ala
1145 1150 1155

Gln Lys Gly Ser His Gln Ile Ser Leu Asp Asn Pro Asp Tyr Gln
1160 1165 1170

Gln Asp Phe Phe Pro Lys Glu Ala Lys Pro Asn Gly Ile Phe Lys
1175 1180 1185

Gly Ser Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val Ala Pro Gln
1190 1195 1200

Ser Ser Glu Phe Ile Gly Ala
1205 1210

<210> 3
<211> 5992
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (281)..(3913)

<400> 3
ctccccagtc cccgaccgga gctaactaga cgtctgggca gccccagcgc aacgcgcagc 60
agcctccctc ctcttcttcc cgcactgtgc gtcctctctg ggctagggcg tctggatcga 120
gtcccggagg ctaccgcctc ccagacagac gacaggtcac ctggacgcga gcctgtgtcc 180
gggtctcgtc gttgccggcg cagtcactgg gcacaaccgt gggactccgt ctgtctcgga 240
ttaatcccg agagccagag ccaacctctc ccggtcagag atg cga ccc tca ggg 295
Met Arg Pro Ser Gly
1 5
acc gcg aga acc aca ctg ctg gtg ttg ctg acc gcg ctc tgc gcc gca 343
Thr Ala Arg Thr Thr Leu Leu Val Leu Thr Ala Leu Cys Ala Ala
10 15 20

ggt ggg gcg ttg gag gaa aag aaa gtc tgc caa ggc aca agt aac agg 391
 Gly Gly Ala Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser Asn Arg
 25 30 35

ctc acc caa ctg ggc act ttt gaa gac cac ttt ctg agc ctg cag agg 439
 Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu Gln Arg
 40 45 50

atg tac aac aac tgt gaa gtg gtc ctt ggg aac ttg gaa att acc tat 487
 Met Tyr Asn Asn Cys Glu Val Val Leu Gly Asn Leu Glu Ile Thr Tyr
 55 60 65

gtg caa agg aat tac gac ctt tcc ttc tta aag acc atc cag gag gtg 535
 Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln Glu Val
 70 75 80 85

gcc ggc tat gtc ctc att gcc ctc aac acc gtg gag aga atc cct ttg 583
 Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile Pro Leu
 90 95 100

gag aac ctg cag atc atc agg gga aat gct ctt tat gaa aac acc tat 631
 Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu Tyr Glu Asn Thr Tyr
 105 110 115

gcc tta gcc atc ctg tcc aac tat ggg aca aac aga act ggg ctt agg 679
 Ala Leu Ala Ile Leu Ser Asn Tyr Gly Thr Asn Arg Thr Gly Leu Arg
 120 125 130

gaa ctg ccc atg cgg aac tta cag gaa atc ctg att ggt gct gtg cga 727
 Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu Ile Gly Ala Val Arg
 135 140 145

ttc agc aac aac ccc atc ctc tgc aat atg gat act atc cag tgg agg 775
 Phe Ser Asn Asn Pro Ile Leu Cys Asn Met Asp Thr Ile Gln Trp Arg
 150 155 160 165

gac atc gtc caa aac gtc ttt atg agc aac atg tca atg gac tta cag 823
 Asp Ile Val Gln Asn Val Phe Met Ser Asn Met Ser Met Asp Leu Gln
 170 175 180

agc cat ccg agc agt tgc ccc aaa tgt gat cca agc tgt ccc aat gga 871
 Ser His Pro Ser Ser Cys Pro Lys Cys Asp Pro Ser Cys Pro Asn Gly
 185 190 195

agc tgc tgg gga gga gga gag gag aac tgc cag aaa ttg acc aaa atc 919
 Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln Lys Leu Thr Lys Ile
 200 205 210

atc tgt gcc cag caa tgt tcc cat cgc tgt cgt ggc agg tcc ccc agt 967
 Ile Cys Ala Gln Gln Cys Ser His Arg Cys Arg Gly Arg Ser Pro Ser
 215 220 225

gac tgc tgc cac aac caa tgt gct gcg ggg tgt aca ggg ccc cga gag 1015
 Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys Thr Gly Pro Arg Glu
 230 235 240 245

agt gac tgt ctg gtc tgc caa aag ttc caa gat gag gcc aca tgc aaa 1063
 Ser Asp Cys Leu Val Cys Gln Lys Phe Gln Asp Glu Ala Thr Cys Lys
 250 255 260

gac acc tgc cca cca ctc atg ctg tac aac ccc acc acc tat cag atg 1111
 Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro Thr Thr Tyr Gln Met
 265 270 275

gat gtc aac cct gaa ggg aag tac agc ttt ggt gcc acc tgt gtg aag 1159
 Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly Ala Thr Cys Val Lys
 280 285 290

aag tgc ccc cga aac tac gtg gtg aca gat cat ggc tca tgt gtc cga Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His Gly Ser Cys Val Arg 295 300 305	1207
gcc tgt ggg cct gac tac tac gaa gtg gaa gaa gat ggc atc cgc aag Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu Asp Gly Ile Arg Lys 310 315 320 325	1255
tgt aaa aaa tgt gat ggg ccc tgt cgc aaa gtt tgt aat ggc ata ggc Cys Lys Lys Cys Asp Gly Pro Cys Arg Lys Val Cys Asn Gly Ile Gly 330 335 340	1303
att ggt gaa ttt aaa gac aca ctc tcc ata aat gct aca aac atc aaa Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn Ala Thr Asn Ile Lys 345 350 355	1351
cac ttc aaa tac tgc act gcc atc agc ggg gac ctt cac atc ctg cca His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp Leu His Ile Leu Pro 360 365 370	1399
gtg gcc ttt aag ggg gat tct ttc acg cgc act cct cct cta gac cca Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr Pro Pro Leu Asp Pro 375 380 385	1447
cga gaa cta gaa att cta aaa acc gta aag gaa ata aca ggc ttt ttg Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu Ile Thr Gly Phe Leu 390 395 400 405	1495
ctg att cag gct tgg cct gat aac tgg act gac ctc cat gct ttc gag Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp Leu His Ala Phe Glu 410 415 420	1543
aac cta gaa ata ata cgt ggc aga aca aag caa cat ggt cag ttt tct Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln His Gly Gln Phe Ser 425 430 435	1591
ttg gcg gtc gtt ggc ctg aac atc aca tca ctg ggg ctg cgt tcc ctc Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu Gly Leu Arg Ser Leu 440 445 450	1639
aag gag atc agt gat ggg gat gtg atc att tct gga aac cga aat ttg Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser Gly Asn Arg Asn Leu 455 460 465	1687
tgc tac gca aac aca ata aac tgg aaa aaa ctc ttc ggg aca ccc aat Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu Phe Gly Thr Pro Asn 470 475 480 485	1735
cag aaa acc aaa atc atg aac aac aga gct gag aaa gac tgc aag gcc Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu Lys Asp Cys Lys Ala 490 495 500	1783
gtg aac cac gtc tgc aat cct tta tgc tcc tcg gaa ggc tgc tgg ggc Val Asn His Val Cys Asn Pro Leu Cys Ser Ser Glu Gly Cys Trp Gly 505 510 515	1831
cct gag ccc agg gac tgt gtc tcc tgc cag aat gtg agc aga ggc agg Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn Val Ser Arg Gly Arg 520 525 530	1879
gag tgc gtg gag aaa tgc aac atc ctg gag ggg gaa cca agg gag ttt Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly Glu Pro Arg Glu Phe 535 540 545	1927
gtg gaa aat tct gaa tgc atc cag tgc cat cca gaa tgt ctg ccc cag Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro Glu Cys Leu Pro Gln 550 555 560 565	1975

gcc atg aac atc acc tgt aca ggc agg gga cca gac aac tgc atc cag Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro Asp Asn Cys Ile Gln 570 575 580	2023
tgt gcc cac tac att gat ggc cca cac tgt gtc aag acc tgc cca gct Cys Ala His Tyr Ile Asp Gly Pro His Cys Val Lys Thr Cys Pro Ala 585 590 595	2071
ggc atc atg gga gag aac aac act ctg gtc tgg aag tat gca gat gcc Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp Lys Tyr Ala Asp Ala 600 605 610	2119
aat aat gtc tgc cac cta tgc cac gcc aac tgt acc tat gga tgt gct Asn Asn Val Cys His Leu Cys His Ala Asn Cys Thr Tyr Gly Cys Ala 615 620 625	2167
ggg cca ggt ctt caa gga tgt gaa gtg tgg cca tct ggg cca aag ata Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro Ser Gly Pro Lys Ile 630 635 640 645	2215
cca tct att gcc act ggg att gtg ggt ggc ctc ctc ttc ata gtg gtg Pro Ser Ile Ala Thr Gly Ile Val Gly Leu Leu Phe Ile Val Val 650 655 660	2263
gtg gcc ctt ggg att ggc cta ttc atg cga aga cgt cac att gtt cga Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg Arg His Ile Val Arg 665 670 675	2311
aag cgt aca cta cgc cgc ctg ctt caa gag aga gag ctc gtg gaa cct Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg Glu Leu Val Glu Pro 680 685 690	2359
ctc aca ccc agc gga gaa gct cca aac caa gcc cac ttg agg ata tta Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala His Leu Arg Ile Leu 695 700 705	2407
aag gaa aca gaa ttc aaa aag atc aaa gtt ctg ggt tgc gga gca ttt Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu Gly Ser Gly Ala Phe 710 715 720 725	2455
ggc aca gtg tat aag ggt ctc tgg atc cca gaa ggt gag aaa gta aaa Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu Gly Glu Lys Val Lys 730 735 740	2503
atc ccg gtg gcc atc aag gag tta aga gaa gcc aca tct cca aaa gcc Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser Pro Lys Ala 745 750 755	2551
aac aaa gaa atc ctt gac gaa gcc tat gtg atg gct agt gtg gac aac Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met Ala Ser Val Asp Asn 760 765 770	2599
cct cat gta tgc cgc ctc ctg ggc atc tgt ctg acc tcc act gtc cag Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln 775 780 785	2647
ctc att aca cag ctc atg ccc tac ggt tgc ctc ctg gac tac gtc cga Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu Leu Asp Tyr Val Arg 790 795 800 805	2695
gaa cac aag gac aac att ggc tcc cag tac ctc ctc aac tgg tgt gtg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn Trp Cys Val 810 815 820	2743
cag att gca aag ggc atg aac tac ctg gaa gat cgg cgt ttg gtg cac Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp Arg Arg Leu Val His 825 830 835	2791

cgt gac ttg gca gcc agg aat gta ctg gtg aag aca cca cag cat gtc Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Thr Pro Gln His Val 840 845 850	2839
aag atc aca gat ttt ggg ctg gcc aaa ctg ctt ggt gct gaa gag aaa Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu Gly Ala Glu Glu Lys 855 860 865	2887
gaa tat cat gcc gag ggg ggc aaa gtg cct atc aag tgg atg gct ttg Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu 870 875 880 885	2935
gaa tca att tta cac cga att tat aca cac caa agt gat gtc tgg agc Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln Ser Asp Val Trp Ser 890 895 900	2983
tat ggt gtc act gtg tgg gaa ctg atg acc ttt ggg tcc aag cct tat Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ser Lys Pro Tyr 905 910 915	3031
gat gga atc cca gca agt gac atc tca tcc atc cta gag aaa gga gag Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile Leu Glu Lys Gly Glu 920 925 930	3079
cgc ctt cca cag cca cct atc tgc acc atc gat gtc tac atg atc atg Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met 935 940 945	3127
gtc aag tgc tgg atg ata gat gct gat agc cgc cca aag ttc cga gag Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Arg Glu 950 955 960 965	3175
ttg att ctt gaa ttc tcc aaa atg gcc cga gac cca cag cgc tac ctt Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp Pro Gln Arg Tyr Leu 970 975 980	3223
gtt atc cag ggg gat gaa aga atg cat ttg cca agc cct aca gac tcc Val Ile Gln Gly Asp Glu Arg Met His Leu Pro Ser Pro Thr Asp Ser 985 990 995	3271
aac ttt tac cga gcc ctg atg gat gaa gag gac atg gag gat gta Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp Met Glu Asp Val 1000 1005 1010	3316
gtt gat gct gat gag tat ctt atc cca cag caa ggc ttc ttc aac Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln Gly Phe Phe Asn 1015 1020 1025	3361
agc ccg tcc acg tcg agg act ccc ctc ttg agt tct ctg agt gca Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser Ser Leu Ser Ala 1030 1035 1040	3406
act agc aac aat tcc act gtg gct tgc att aat aga aat ggg agc Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn Arg Asn Gly Ser 1045 1050 1055	3451
tgc cgt gtc aaa gaa gac gcc ttc ttg cag cgg tac agc tcc gac Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg Tyr Ser Ser Asp 1060 1065 1070	3496
ccc aca ggt gct gta aca gag gac aac ata gat gac gca ttc ctc Pro Thr Gly Ala Val Thr Glu Asp Asn Ile Asp Asp Ala Phe Leu 1075 1080 1085	3541
cct gta cct gaa tat gta aac caa tct gtt ccc aag agg cca gca Pro Val Pro Glu Tyr Val Asn Gln Ser Val Pro Lys Arg Pro Ala 1090 1095 1100	3586

ggc tct gtg	cag aac cct gtc tat	cac aat cag ccc ctg	cat cca	3631		
Gly Ser Val	Gln Asn Pro Val Tyr	His Asn Gln Pro Leu	His Pro			
1105	1110	1115				
gct cct gga	aga gac ctg cat tat	caa aat ccc cac agc	aat gca	3676		
Ala Pro Gly	Arg Asp Leu His Tyr	Gln Asn Pro His Ser	Asn Ala			
1120	1125	1130				
gtg ggc aac	cct gag tat ctc aac	act gcc cag cct acc	tgt ctc	3721		
Val Gly Asn	Pro Glu Tyr Leu Asn	Thr Ala Gln Pro Thr	Cys Leu			
1135	1140	1145				
agt agt ggg	ttt aac agc cct gca	ctc tgg atc cag aaa	ggc agt	3766		
Ser Ser Gly	Phe Asn Ser Pro Ala	Leu Trp Ile Gln Lys	Gly Ser			
1150	1155	1160				
cac caa atg	agc cta gac aac cct	gac tac cag cag gac	ttc ttc	3811		
His Gln Met	Ser Leu Asp Asn Pro	Asp Tyr Gln Gln Asp	Phe Phe			
1165	1170	1175				
ccc aag gaa	acc aag cca aat ggc	ata ttt aag ggc ccc	aca gct	3856		
Pro Lys Glu	Thr Lys Pro Asn Gly	Ile Phe Lys Gly Pro	Thr Ala			
1180	1185	1190				
gaa aat gca	gag tac cta cgg gtg	gca cct cca agc agt	gag ttt	3901		
Glu Asn Ala	Glu Tyr Leu Arg Val	Ala Pro Pro Ser Ser	Glu Phe			
1195	1200	1205				
att gga gca	tga caagaagggg	catcatacca	gctataaaat	gtctggactt	3953	
Ile Gly Ala						
1210						
tctagaatcc	caggaccaac	tatggcagca	cctccacttc	tggtagccat	gcccacgctg	4013
tggtcaaatgt	cactcagact	gggtttaaag	cataactctg	atgggctttg	tcaactgagcc	4073
aagaagtggg	cctctctcct	gatgcacttt	gggaagttga	aggtacatca	attgatcttc	4133
gaactgtgaa	gattccacaa	aaaaggtatc	catcgagaac	attgtccatt	ggaacagaag	4193
tttgccctcat	ggtgaggtac	atatgggaaa	aaaacagaca	tatggagctt	atatttaggg	4253
aactttggga	ttcttgtott	tattgatttg	attgatgcac	tcttgtagtc	tggtacacag	4313
agttgcctgg	agccaactga	ccagacagtt	ggttccacca	gctctgcac	aagacacttc	4373
cgtggcaaga	caactaaatg	tataagaagt	ccatggatgc	cctgagcagg	ccacacttgt	4433
acagcattaa	accatggcag	atacaatagg	ataagccact	ttgttactta	ctggggctgg	4493
gagaagagga	atgacggggt	agaattttcc	ctcagacgta	ctttttatat	aaatatgtcc	4553
ctggcaccta	acacgcgcta	gtttaccagt	gttttctatt	agaacttcctt	ctatgttttc	4613
tgtttcattg	ttttgagttg	taaatatgtg	ttcctgtott	catttcatga	agtaaaca	4673
caaaacaaaa	accagttatt	aagtattatc	aaagaacaac	catgattcca	cattcgaacc	4733
cattcaaacc	atcagttattg	tgacaaaag	cctttaacta	agaaggagta	accatgcaaa	4793
aatccataga	ggaatttaac	ccaaaatttt	agtctcagca	ttgtgtctgc	tgaggtgtgt	4853
atatgagact	acgaaagtga	actactcttc	aaatccactt	tgccctcact	cctctatacc	4913
ctaaatctag	tgtaaaccac	acatggagga	taactttttt	ttttaatttt	aaaagtgttt	4973
attagatatg	tttttcttcc	tggtaaactg	cagccaaaca	tcagttaaga	gccatttttg	5033

ataaacacta tcacaatgat ctcgggatcc atcctttccg atttaccaag tgatggatag 5093
 acgtgaactc ataaacacta cccataagac aaaacaatga gtgccagaca agacatcagc 5153
 caggcaccag agcacagagc aggactgggc aatctgttgg agatatctag aaagttcaca 5213
 aaggaaacaa gattgtccac taccttgtga gatctagcag tcataaatac cagggaaatg 5273
 gaaagtgtgt ttcccttacag caccaggtct tcgatcttcc taatgctgtg accctttaat 5333
 acagtttgcc atgttgtggt gacccccaac cataaaatta tttttgttgc tacttcataa 5393
 ctgtaaattt gctactctta cagaccacaa tgtaaataac tgatatgcta tctgatatgc 5453
 aggctatctg acagaggtcg caaccgcag gttgagagcc actgccttca aggctttaat 5513
 caagagagta gtgagctgag ggctttactg gtaagtcagg ggcaagtcca actcaatcat 5573
 cctcacatac tggtgtctcc ctgaggctg agaatgaggc ttgcagcatc ctctggtttc 5633
 ctaaccgtta tccatccctg actctcatct ctgaaaatag atgtcatcca tgaaattaag 5693
 gagtgagaat attaagcagc atttatagag ctcaaaattc catgtcatca ccaggaagtg 5753
 ccatgttgat cacagagaac acagaggaga catatagaca gggttttgct caaaattggg 5813
 atatagaatg agcctgtcag gtacctatca ggagcggtaa tccgtgagag agaaccgttg 5873
 caagccactc taactgtagc aatgaaaccc tagtattttt gtactttgaa atactttctt 5933
 ataacaaaat aaagtagcaa aaaaactggt caaaaaaaaaa aaaaaaaaaa cccgaattc 5992

<210> 4
 <211> 1210
 <212> PRT
 <213> Mus musculus

<400> 4

Met Arg Pro Ser Gly Thr Ala Arg Thr Thr Leu Leu Val Leu Leu Thr
1 5 10 15

Ala Leu Cys Ala Ala Gly Gly Ala Leu Glu Glu Lys Lys Val Cys Gln
20 25 30

Gly Thr Ser Asn Arg Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe
35 40 45

Leu Ser Leu Gln Arg Met Tyr Asn Asn Cys Glu Val Val Leu Gly Asn
50 55 60

Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys
65 70 75 80

Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val
85 90 95

Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu
100 105 110

Tyr Glu Asn Thr Tyr Ala Leu Ala Ile Leu Ser Asn Tyr Gly Thr Asn
 115 120 125

Arg Thr Gly Leu Arg Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu
 130 135 140

Ile Gly Ala Val Arg Phe Ser Asn Asn Pro Ile Leu Cys Asn Met Asp
 145 150 155 160

Thr Ile Gln Trp Arg Asp Ile Val Gln Asn Val Phe Met Ser Asn Met
 165 170 175

Ser Met Asp Leu Gln Ser His Pro Ser Ser Cys Pro Lys Cys Asp Pro
 180 185 190

Ser Cys Pro Asn Gly Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln
 195 200 205

Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser His Arg Cys Arg
 210 215 220

Gly Arg Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys
 225 230 235 240

Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Gln Lys Phe Gln Asp
 245 250 255

Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro
 260 265 270

Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly
 275 280 285

Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His
 290 295 300

Gly Ser Cys Val Arg Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu
 305 310 315 320

Asp Gly Ile Arg Lys Cys Lys Lys Cys Asp Gly Pro Cys Arg Lys Val
 325 330 335

Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn
 340 345 350

Ala Thr Asn Ile Lys His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp
 355 360 365

Leu His Ile Leu Pro Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr
 370 375 380

Pro Pro Leu Asp Pro Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu
385 390 395 400

Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp
405 410 415

Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln
420 425 430

His Gly Gln Phe Ser Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu
435 440 445

Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser
450 455 460

Gly Asn Arg Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu
465 470 475 480

Phe Gly Thr Pro Asn Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu
485 490 495

Lys Asp Cys Lys Ala Val Asn His Val Cys Asn Pro Leu Cys Ser Ser
500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn
515 520 525

Val Ser Arg Gly Arg Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly
530 535 540

Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro
545 550 555 560

Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro
565 570 575

Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val
580 585 590

Lys Thr Cys Pro Ala Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp
595 600 605

Lys Tyr Ala Asp Ala Asn Asn Val Cys His Leu Cys His Ala Asn Cys
610 615 620

Thr Tyr Gly Cys Ala Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro
625 630 635 640

Ser Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Ile Val Gly Gly Leu
645 650 655

Leu Phe Ile Val Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg
 660 665 670

Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg
 675 680 685

Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala
 690 695 700

His Leu Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu
 705 710 715 720

Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu
 725 730 735

Gly Glu Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala
 740 745 750

Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met
 755 760 765

Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu
 770 775 780

Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu
 785 790 795 800

Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu
 805 810 815

Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp
 820 825 830

Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys
 835 840 845

Thr Pro Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu
 850 855 860

Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile
 865 870 875 880

Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln
 885 890 895

Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe
 900 905 910

Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile
 915 920 925

Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp
 930 935 940

Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg
 945 950 955 960

Pro Lys Phe Arg Glu Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp
 965 970 975

Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro
 980 985 990

Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp
 995 1000 1005

Met Glu Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln
 1010 1015 1020

Gly Phe Phe Asn Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser
 1025 1030 1035

Ser Leu Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn
 1040 1045 1050

Arg Asn Gly Ser Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg
 1055 1060 1065

Tyr Ser Ser Asp Pro Thr Gly Ala Val Thr Glu Asp Asn Ile Asp
 1070 1075 1080

Asp Ala Phe Leu Pro Val Pro Glu Tyr Val Asn Gln Ser Val Pro
 1085 1090 1095

Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln
 1100 1105 1110

Pro Leu His Pro Ala Pro Gly Arg Asp Leu His Tyr Gln Asn Pro
 1115 1120 1125

His Ser Asn Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Ala Gln
 1130 1135 1140

Pro Thr Cys Leu Ser Ser Gly Phe Asn Ser Pro Ala Leu Trp Ile
 1145 1150 1155

Gln Lys Gly Ser His Gln Met Ser Leu Asp Asn Pro Asp Tyr Gln
 1160 1165 1170

Gln Asp Phe Phe Pro Lys Glu Thr Lys Pro Asn Gly Ile Phe Lys
 1175 1180 1185

Gly Pro Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val Ala Pro Pro
 1190 1195 1200

Ser Ser Glu Phe Ile Gly Ala
 1205 1210

<210> 5
 <211> 5992
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (281)..(3913)

<400> 5
 ctccccccagt cccgaccoga gctaactaga cgtctgggca gccccagcgc aacgcgcagc 60
 agcctccctc ctcttcttcc cgcactgtgc gctcctcctg ggctagggcg tctggatcga 120
 gtcccgagg ctaccgcctc ccagacagac gacagggtcac ctggacgcga gcctgtgtcc 180
 gggctctcgtc gttgccggcg cagtcaactgg gcacaaccgt gggactccgt ctgtctcgga 240
 ttaatcccg agagccagag ccaacctctc ccggtcagag atg cga ccc tca ggg 295
 Met Arg Pro Ser Gly
 1 5
 acc gcg aga acc aca ctg ctg gtg ttg ctg acc gcg ctc tgc gcc gca 343
 Thr Ala Arg Thr Thr Leu Leu Val Leu Leu Thr Ala Leu Cys Ala Ala
 10 15 20
 ggt ggg gcg ttg gag gaa aag aaa gtc tgc caa ggc aca agt aac agg 391
 Gly Gly Ala Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser Asn Arg
 25 30 35
 ctc acc caa ctg ggc act ttt gaa gac cac ttt ctg agc ctg cag agg 439
 Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu Gln Arg
 40 45 50
 atg tac aac aac tgt gaa gtg gtc ctt ggg aac ttg gaa att acc tat 487
 Met Tyr Asn Asn Cys Glu Val Leu Gly Asn Leu Glu Ile Thr Tyr
 55 60 65
 gtg caa agg aat tac gac ctt tcc ttc tta aag acc atc cag gag gtg 535
 Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln Glu Val
 70 75 80 85
 gcc ggc tat gtc ctc att gcc ctc aac acc gtg gag aga atc cct ttg 583
 Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile Pro Leu
 90 95 100
 gag aac ctg cag atc atc agg gga aat gct ctt tat gaa aac acc tat 631
 Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu Tyr Glu Asn Thr Tyr
 105 110 115
 gcc tta gcc atc ctg tcc aac tat ggg aca aac aga act ggg ctt agg 679
 Ala Leu Ala Ile Leu Ser Asn Tyr Gly Thr Asn Arg Thr Gly Leu Arg
 120 125 130
 gaa ctg ccc atg cgg aac tta cag gaa atc ctg att ggt gct gtg cga 727
 Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu Ile Gly Ala Val Arg
 135 140 145
 ttc agc aac aac ccc atc ctc tgc aat atg gat act atc cag tgg agg 775

Phe Ser Asn Asn Pro Ile Leu Cys Asn Met Asp Thr Ile Gln Trp Arg	
150 155 160 165	
gac atc gtc caa aac gtc ttt atg agc aac atg tca atg gac tta cag	823
Asp Ile Val Gln Asn Val Phe Met Ser Asn Met Ser Met Asp Leu Gln	
170 175 180	
agc cat ccg agc agt tgc ccc aaa tgt gat cca agc tgt ccc aat gga	871
Ser His Pro Ser Ser Cys Pro Lys Cys Asp Pro Ser Cys Pro Asn Gly	
185 190 195	
agc tgc tgg gga gga gga gag gag aac tgc cag aaa ttg acc aaa atc	919
Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln Lys Leu Thr Lys Ile	
200 205 210	
atc tgt gcc cag caa tgt tcc cat cgc tgt cgt ggc agg tcc ccc agt	967
Ile Cys Ala Gln Gln Cys Ser His Arg Cys Arg Gly Arg Ser Pro Ser	
215 220 225	
gac tgc tgc cac aac caa tgt gct gcg ggg tgt aca ggg ccc cga gag	1015
Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys Thr Gly Pro Arg Glu	
230 235 240 245	
agt gac tgt ctg gtc tgc caa aag ttc caa gat gag gcc aca tgc aaa	1063
Ser Asp Cys Leu Val Cys Gln Lys Phe Gln Asp Glu Ala Thr Cys Lys	
250 255 260	
gac acc tgc cca cca ctc atg ctg tac aac ccc acc acc tat cag atg	1111
Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro Thr Thr Tyr Gln Met	
265 270 275	
gat gtc aac cct gaa ggg aag tac agc ttt ggt gcc acc tgt gtg aag	1159
Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly Ala Thr Cys Val Lys	
280 285 290	
aag tgc ccc cga aac tac gtg gtg aca gat cat ggc tca tgt gtc cga	1207
Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His Gly Ser Cys Val Arg	
295 300 305	
gcc tgt ggg cct gac tac tac gaa gtg gaa gaa gat ggc atc cgc aag	1255
Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu Asp Gly Ile Arg Lys	
310 315 320 325	
tgt aaa aaa tgt gat ggg ccc tgt cgc aaa gtt tgt aat ggc ata ggc	1303
Cys Lys Lys Cys Asp Gly Pro Cys Arg Lys Val Cys Asn Gly Ile Gly	
330 335 340	
att ggt gaa ttt aaa gac aca ctc tcc ata aat gct aca aac atc aaa	1351
Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn Ala Thr Asn Ile Lys	
345 350 355	
cac ttc aaa tac tgc act gcc atc agc ggg gac ctt cac atc ctg cca	1399
His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp Leu His Ile Leu Pro	
360 365 370	
gtg gcc ttt aag ggg gat tct ttc acg cgc act cct cct cta gac cca	1447
Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr Pro Pro Leu Asp Pro	
375 380 385	
cga gaa cta gaa att cta aaa acc gta aag gaa ata aca ggc ttt ttg	1495
Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu Ile Thr Gly Phe Leu	
390 395 400 405	
ctg att cag gct tgg cct gat aac tgg act gac ctc cat gct ttc gag	1543
Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp Leu His Ala Phe Glu	
410 415 420	
aac cta gaa ata ata cgt ggc aga aca aag caa cat ggt cag ttt tct	1591

Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln His Gly Gln Phe Ser	
425 430 435	
ttg gcg gtc gtt ggc ctg aac atc aca tca ctg ggg ctg cgt tcc ctc	1639
Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu Gly Leu Arg Ser Leu	
440 445 450	
aag gag atc agt gat ggg gat gtg atc att tct gga aac cga aat ttg	1687
Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser Gly Asn Arg Asn Leu	
455 460 465	
tgc tac gca aac aca ata aac tgg aaa aaa ctc ttc ggg aca ccc aat	1735
Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Ala Phe Gly Thr Pro Asn	
470 475 480 485	
cag aaa acc aaa atc atg aac aac aga gct gag aaa gac tgc aag gcc	1783
Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu Lys Asp Cys Lys Ala	
490 495 500	
gtg aac cac gtc tgc aat cct tta tgc tcc tcg gaa ggc tgc tgg ggc	1831
Val Asn His Val Cys Asn Pro Leu Cys Ser Ser Glu Gly Cys Trp Gly	
505 510 515	
cct gag ccc agg gac tgt gtc tcc tgc cag aat gtg agc aga ggc agg	1879
Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn Val Ser Arg Gly Arg	
520 525 530	
gag tgc gtg gag aaa tgc aac atc ctg gag ggg gaa cca agg gag ttt	1927
Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly Glu Pro Arg Glu Phe	
535 540 545	
gtg gaa aat tct gaa tgc atc cag tgc cat cca gaa tgt ctg ccc cag	1975
Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro Glu Cys Leu Pro Gln	
550 555 560 565	
gcc atg aac atc acc tgt aca ggc agg gga cca gac aac tgc atc cag	2023
Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro Asp Asn Cys Ile Gln	
570 575 580	
tgt gcc cac tac att gat ggc cca cac tgt gtc aag acc tgc cca gct	2071
Cys Ala His Tyr Ile Asp Gly Pro His Cys Val Lys Thr Cys Pro Ala	
585 590 595	
ggc atc atg gga gag aac aac act ctg gtc tgg aag tat gca gat gcc	2119
Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp Lys Tyr Ala Asp Ala	
600 605 610	
aat aat gtc tgc cac cta tgc cac gcc aac tgt acc tat gga tgt gct	2167
Asn Asn Val Cys His Leu Cys His Ala Asn Cys Thr Tyr Gly Cys Ala	
615 620 625	
ggg cca ggt ctt caa gga tgt gaa gtg tgg cca tct ggg cca aag ata	2215
Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro Ser Gly Pro Lys Ile	
630 635 640 645	
cca tct att gcc act ggg att gtg ggt ggc ctc ctc ttc ata gtg gtg	2263
Pro Ser Ile Ala Thr Gly Ile Val Gly Gly Leu Leu Phe Ile Val Val	
650 655 660	
gtg gcc ctt ggg att ggc cta ttc atg cga aga cgt cac att gtt cga	2311
Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg Arg His Ile Val Arg	
665 670 675	
aag cgt aca cta cgc cgc ctg ctt caa gag aga gag ctc gtg gaa cct	2359
Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg Glu Leu Val Glu Pro	
680 685 690	
ctc aca ccc agc gga gaa gct cca aac caa gcc cac ttg agg ata tta	2407

Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala His Leu Arg Ile Leu	
695 700 705	
aag gaa aca gaa ttc aaa aag atc aaa gtt ctg ggt tgc gga gca ttt	2455
Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu Gly Ser Gly Ala Phe	
710 715 720 725	
ggc aca gtg tat aag ggt ctc tgg atc cca gaa ggt gag aaa gta aaa	2503
Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu Gly Glu Lys Val Lys	
730 735 740	
atc ccg gtg gcc atc aag gag tta aga gaa gcc aca tct cca aaa gcc	2551
Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser Pro Lys Ala	
745 750 755	
aac aaa gaa atc ctt gac gaa gcc tat gtg atg gct agt gtg gac aac	2599
Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met Ala Ser Val Asp Asn	
760 765 770	
cct cat gta tgc cgc ctc ctg ggc atc tgt ctg acc tcc act gtc cag	2647
Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln	
775 780 785	
ctc att aca cag ctc atg ccc tac ggt tgc ctc ctg gac tac gtc cga	2695
Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu Leu Asp Tyr Val Arg	
790 795 800 805	
gaa cac aag gac aac att ggc tcc cag tac ctc ctc aac tgg tgt gtg	2743
Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn Trp Cys Val	
810 815 820	
cag att gca aag ggc atg aac tac ctg gaa gat cgg cgt ttg gtg cac	2791
Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp Arg Arg Leu Val His	
825 830 835	
cgt gac ttg gca gcc agg aat gta ctg gtg aag aca cca cag cat gtc	2839
Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Thr Pro Gln His Val	
840 845 850	
aag atc aca ggt ttt ggg ctg gcc aaa ctg ctt ggt gct gaa gag aaa	2887
Lys Ile Thr Gly Phe Gly Leu Ala Lys Leu Leu Gly Ala Glu Glu Lys	
855 860 865	
gaa tat cat gcc gag ggg ggc aaa gtg cct atc aag tgg atg gct ttg	2935
Glu Tyr His Ala Glu Gly Lys Val Pro Ile Lys Trp Met Ala Leu	
870 875 880 885	
gaa tca att tta cac cga att tat aca cac caa agt gat gtc tgg agc	2983
Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln Ser Asp Val Trp Ser	
890 895 900	
tat ggt gtc act gtg tgg gaa ctg atg acc ttt ggg tcc aag cct tat	3031
Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ser Lys Pro Tyr	
905 910 915	
gat gga atc cca gca agt gac atc tca tcc atc cta gag aaa gga gag	3079
Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile Leu Glu Lys Gly Glu	
920 925 930	
cgc ctt cca cag cca cct atc tgc acc atc gat gtc tac atg atc atg	3127
Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met	
935 940 945	
gtc aag tgc tgg atg ata gat gct gat agc cgc cca aag ttc cga gag	3175
Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Arg Glu	
950 955 960 965	
ttg att ctt gaa ttc tcc aaa atg gcc cga gac cca cag cgc tac ctt	3223

Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp Pro Gln Arg Tyr Leu	
970 975 980	
gtt atc cag ggg gat gaa aga atg cat ttg cca agc cct aca gac tcc	3271
Val Ile Gln Gly Asp Glu Arg Met His Leu Pro Ser Pro Thr Asp Ser	
985 990 995	
aac ttt tac cga gcc ctg atg gat gaa gag gac atg gag gat gta	3316
Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp Met Glu Asp Val	
1000 1005 1010	
gtt gat gct gat gag tat ctt atc cca cag caa ggc ttc ttc aac	3361
Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln Gly Phe Phe Asn	
1015 1020 1025	
agc ccg tcc acg tcg agg act ccc ctc ttg agt tct ctg agt gca	3406
Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser Ser Leu Ser Ala	
1030 1035 1040	
act agc aac aat tcc act gtg gct tgc att aat aga aat ggg agc	3451
Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn Arg Asn Gly Ser	
1045 1050 1055	
tgc cgt gtc aaa gaa gac gcc ttc ttg cag cgg tac agc tcc gac	3496
Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg Tyr Ser Ser Asp	
1060 1065 1070	
ccc aca ggt gct gta aca gag gac aac ata gat gac gca ttc ctc	3541
Pro Thr Gly Ala Val Thr Glu Asp Asn Ile Asp Asp Ala Phe Leu	
1075 1080 1085	
cct gta cct gaa tat gta aac caa tct gtt ccc aag agg cca gca	3586
Pro Val Pro Glu Tyr Val Asn Gln Ser Val Pro Lys Arg Pro Ala	
1090 1095 1100	
ggc tct gtg cag aac cct gtc tat cac aat cag ccc ctg cat cca	3631
Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln Pro Leu His Pro	
1105 1110 1115	
gct cct gga aga gac ctg cat tat caa aat ccc cac agc aat gca	3676
Ala Pro Gly Arg Asp Leu His Tyr Gln Asn Pro His Ser Asn Ala	
1120 1125 1130	
gtg ggc aac cct gag tat ctc aac act gcc cag cct acc tgt ctc	3721
Val Gly Asn Pro Glu Tyr Leu Asn Thr Ala Gln Pro Thr Cys Leu	
1135 1140 1145	
agt agt ggg ttt aac agc cct gca ctc tgg atc cag aaa ggc agt	3766
Ser Ser Gly Phe Asn Ser Pro Ala Leu Trp Ile Gln Lys Gly Ser	
1150 1155 1160	
cac caa atg agc cta gac aac cct gac tac cag cag gac ttc ttc	3811
His Gln Met Ser Leu Asp Asn Pro Asp Tyr Gln Gln Asp Phe Phe	
1165 1170 1175	
ccc aag gaa acc aag cca aat ggc ata ttt aag ggc ccc aca gct	3856
Pro Lys Glu Thr Lys Pro Asn Gly Ile Phe Lys Gly Pro Thr Ala	
1180 1185 1190	
gaa aat gca gag tac cta cgg gtg gca cct cca agc agt gag ttt	3901
Glu Asn Ala Glu Tyr Leu Arg Val Ala Pro Pro Ser Ser Glu Phe	
1195 1200 1205	
att gga gca tga caagaagggg catcatacca gctataaaat gtctggactt	3953
Ile Gly Ala	
1210	
tctagaatcc caggaccaac tatggcagca cctccacttc tggtagccat gccacgctg	4013

tgtcaaatgt cactcagact ggctttaag cataactctg atgggctttg tcactgagcc 4073
 aagaagtggg cctctctcct gatgcacttt gggaagttga aggtacatca attgatcttc 4133
 gaactgtgaa gattccacaa aaaaggatc catcgagaac attgtccatt ggaacagaag 4193
 tttgcctcat ggtgaggtag atatgggaaa aaaacagaca tatggagctt atatttaggg 4253
 aactttggga ttcttgtctt tattgatttg attgatgcac tctttagtgc tggtagacag 4313
 agttgcctgg agccaactga ccagacagtt ggttccacca gctctgcac aagacacttc 4373
 cgtggcaaga caactaaatg tataagaagt ccatggatgc cctgagcagg ccacacttgt 4433
 acagcattaa accatggcag atacaatagg ataagccact ttgttactta ctggggctgg 4493
 gagaagagga atgacggggg agaattttcc ctcagacgta ctttttatat aaatatgtcc 4553
 ctggcaccta acacgcgcta gtttaccagt gttttctatt agacttcctt ctatgttttc 4613
 tgtttcattg ttttgagttg taaatatgtg ttctgtctt catttcatga agtaaacaaa 4673
 caaacaacaa acccagtatt aagtattatc aaagaacaac catgattcca cattcgaaac 4733
 cattcaaacc atcagtattg tgacaaaag cctttaacta agaaggagta accatgcaaa 4793
 aatccataga ggaatttaac ccaaaatttt agtctcagca ttgtgtctgc tgagggtgtg 4853
 atatgagact acgaaagtga actactcttc aaatccactt tgccttcaact cctctatacc 4913
 ctaaactctag tgtaaaccac acatggagga taactttttt ttttaatttt aaaagtgttt 4973
 attagatatg tttttcttcc tggtaaactg cagccaaaca tcagttaaga gccatttttg 5033
 ataaacacta tcacaatgat ctgggatcc atcctttccg atttaccag tgatggatag 5093
 acgtgaactc ataaacacta ccataagac aaaacaatga gtgccagaca agacatcagc 5153
 caggcaccag agcacagagc aggactgggc aatctgttgg agatatctag aaagttcaca 5213
 aaggaaacaa gattgtccac taccttgtga gatctagcag tcataaatac cagggaaaatg 5273
 gaaagtgtgt ttctttacag caccaggctt tcgatcttcc taatgtgtgt accctttaat 5333
 acagtttgcc atgttgtggt gaccccaac cataaaatta tttttgttgc tacttcaata 5393
 ctgtaaattt gctactctta cagaccacaa tgtaaatac tgatatgcta tctgatatgc 5453
 aggctatctg acagaggtcg caaccgcag gttgagagcc actgccttca aggctttaat 5513
 caagagagta gtgagctgag ggctttactg gtaagtcagg ggcaagtcca actcaatcat 5573
 cctcacatac tggctgtctc ctcaggcctg agaatgagc ttgcagcatc ctctggtt tc 5633
 ctaaccgtta tccatccctg actctcatct ctgaaaatag atgtcatcca tgaaattaag 5693
 gagtgagaat attaagcagc atttatagag ctcaaaattc catgtcatca ccaggaagtg 5753
 ccatgttgat cacagagaac acagaggaga catatagaca gggttttgct caaaattggg 5813
 atatagaatg agcctgtcag gtacctatca ggagcggtaa tccgtgagag agaaccgt tg 5873
 caagccactc taactgtagc aatgaaaccc tagtattttt gtactttgaa atactttctt 5933
 ataacaaaat aaagtagcaa aaaaactgtt caaaaaaaaaa aaaaaaaaaa cccgaattc 5992

<210> 6
 <211> 1210
 <212> PRT
 <213> Mus musculus

<400> 6

Met Arg Pro Ser Gly Thr Ala Arg Thr Thr Leu Leu Val Leu Leu Thr
 1 5 10 15

Ala Leu Cys Ala Ala Gly Gly Ala Leu Glu Glu Lys Lys Val Cys Gln
 20 25 30

Gly Thr Ser Asn Arg Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe
 35 40 45

Leu Ser Leu Gln Arg Met Tyr Asn Asn Cys Glu Val Val Leu Gly Asn
 50 55 60

Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys
 65 70 75 80

Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val
 85 90 95

Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Ala Leu
 100 105 110

Tyr Glu Asn Thr Tyr Ala Leu Ala Ile Leu Ser Asn Tyr Gly Thr Asn
 115 120 125

Arg Thr Gly Leu Arg Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu
 130 135 140

Ile Gly Ala Val Arg Phe Ser Asn Asn Pro Ile Leu Cys Asn Met Asp
 145 150 155 160

Thr Ile Gln Trp Arg Asp Ile Val Gln Asn Val Phe Met Ser Asn Met
 165 170 175

Ser Met Asp Leu Gln Ser His Pro Ser Ser Cys Pro Lys Cys Asp Pro
 180 185 190

Ser Cys Pro Asn Gly Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln
 195 200 205

Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser His Arg Cys Arg
 210 215 220

Gly Arg Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys
 225 230 235 240

Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Gln Lys Phe Gln Asp
 245 250 255
 Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro
 260 265 270
 Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly
 275 280 285
 Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His
 290 295 300
 Gly Ser Cys Val Arg Ala Cys Gly Pro Asp Tyr Tyr Glu Val Glu Glu
 305 310 315 320
 Asp Gly Ile Arg Lys Cys Lys Lys Cys Asp Gly Pro Cys Arg Lys Val
 325 330 335
 Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Thr Leu Ser Ile Asn
 340 345 350
 Ala Thr Asn Ile Lys His Phe Lys Tyr Cys Thr Ala Ile Ser Gly Asp
 355 360 365
 Leu His Ile Leu Pro Val Ala Phe Lys Gly Asp Ser Phe Thr Arg Thr
 370 375 380
 Pro Pro Leu Asp Pro Arg Glu Leu Glu Ile Leu Lys Thr Val Lys Glu
 385 390 395 400
 Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Asp Asn Trp Thr Asp
 405 410 415
 Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln
 420 425 430
 His Gly Gln Phe Ser Leu Ala Val Val Gly Leu Asn Ile Thr Ser Leu
 435 440 445
 Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser
 450 455 460
 Gly Asn Arg Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu
 465 470 475 480
 Phe Gly Thr Pro Asn Gln Lys Thr Lys Ile Met Asn Asn Arg Ala Glu
 485 490 495
 Lys Asp Cys Lys Ala Val Asn His Val Cys Asn Pro Leu Cys Ser Ser
 500 505 510

Glu Gly Cys Trp Gly Pro Glu Pro Arg Asp Cys Val Ser Cys Gln Asn
 515 520 525
 Val Ser Arg Gly Arg Glu Cys Val Glu Lys Cys Asn Ile Leu Glu Gly
 530 535 540
 Glu Pro Arg Glu Phe Val Glu Asn Ser Glu Cys Ile Gln Cys His Pro
 545 550 555 560
 Glu Cys Leu Pro Gln Ala Met Asn Ile Thr Cys Thr Gly Arg Gly Pro
 565 570 575
 Asp Asn Cys Ile Gln Cys Ala His Tyr Ile Asp Gly Pro His Cys Val
 580 585 590
 Lys Thr Cys Pro Ala Gly Ile Met Gly Glu Asn Asn Thr Leu Val Trp
 595 600 605
 Lys Tyr Ala Asp Ala Asn Asn Val Cys His Leu Cys His Ala Asn Cys
 610 615 620
 Thr Tyr Gly Cys Ala Gly Pro Gly Leu Gln Gly Cys Glu Val Trp Pro
 625 630 635 640
 Ser Gly Pro Lys Ile Pro Ser Ile Ala Thr Gly Ile Val Gly Gly Leu
 645 650 655
 Leu Phe Ile Val Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg
 660 665 670
 Arg His Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg
 675 680 685
 Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala
 690 695 700
 His Leu Arg Ile Leu Lys Glu Thr Glu Phe Lys Lys Ile Lys Val Leu
 705 710 715 720
 Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu
 725 730 735
 Gly Glu Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala
 740 745 750
 Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met
 755 760 765
 Ala Ser Val Asp Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu
 770 775 780

Thr Ser Thr Val Gln Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu
 785 790 795 800
 Leu Asp Tyr Val Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu
 805 810 815
 Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp
 820 825 830
 Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys
 835 840 845
 Thr Pro Gln His Val Lys Ile Thr Gly Phe Gly Leu Ala Lys Leu Leu
 850 855 860
 Gly Ala Glu Glu Lys Glu Tyr His Ala Glu Gly Gly Lys Val Pro Ile
 865 870 875 880
 Lys Trp Met Ala Leu Glu Ser Ile Leu His Arg Ile Tyr Thr His Gln
 885 890 895
 Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe
 900 905 910
 Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala Ser Asp Ile Ser Ser Ile
 915 920 925
 Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp
 930 935 940
 Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg
 945 950 955 960
 Pro Lys Phe Arg Glu Leu Ile Leu Glu Phe Ser Lys Met Ala Arg Asp
 965 970 975
 Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro
 980 985 990
 Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp
 995 1000 1005
 Met Glu Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln
 1010 1015 1020
 Gly Phe Phe Asn Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser
 1025 1030 1035
 Ser Leu Ser Ala Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asn
 1040 1045 1050

Arg Asn Gly Ser Cys Arg Val Lys Glu Asp Ala Phe Leu Gln Arg
 1055 1060 1065
 Tyr Ser Ser Asp Pro Thr Gly Ala Val Thr Glu Asp Asn Ile Asp
 1070 1075 1080
 Asp Ala Phe Leu Pro Val Pro Glu Tyr Val Asn Gln Ser Val Pro
 1085 1090 1095
 Lys Arg Pro Ala Gly Ser Val Gln Asn Pro Val Tyr His Asn Gln
 1100 1105 1110
 Pro Leu His Pro Ala Pro Gly Arg Asp Leu His Tyr Gln Asn Pro
 1115 1120 1125
 His Ser Asn Ala Val Gly Asn Pro Glu Tyr Leu Asn Thr Ala Gln
 1130 1135 1140
 Pro Thr Cys Leu Ser Ser Gly Phe Asn Ser Pro Ala Leu Trp Ile
 1145 1150 1155
 Gln Lys Gly Ser His Gln Met Ser Leu Asp Asn Pro Asp Tyr Gln
 1160 1165 1170
 Gln Asp Phe Phe Pro Lys Glu Thr Lys Pro Asn Gly Ile Phe Lys
 1175 1180 1185
 Gly Pro Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val Ala Pro Pro
 1190 1195 1200
 Ser Ser Glu Phe Ile Gly Ala
 1205 1210

<210> 7
 <211> 18
 <212> DNA
 <213> Mus musculus

<400> 7
 gcatgtcaag atcacaga

18

<210> 8
 <211> 18
 <212> DNA
 <213> Mus musculus

<400> 8
 gcatgtcaag atcacagg

18

<210> 9
 <211> 20
 <212> DNA
 <213> Mus musculus

<400> 9

tagagaatga ccctgacgag

20

<210> 10
 <211> 4624
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (239)..(4006)

<400> 10
 ggaggagggtg gaggaggagg gctgcttgag gaagtataag aatgaagttg tgaagctgag 60
 attccccctcc attgggaccg gagaaccag gggagccccc cgggcagccg cgcgccccctt 120
 cccaagggggc cctttactgc gccgcgcgcc cggccccccac ccctcgcagc accccgcgcc 180
 ccgcgccttc ccagccgggt ccagccggag ccatggggcc ggagccgcag tgagcacc 238
 atg gag ctg gcg gcc ttg tgc cgc tgg ggg ctc ctc ctc gcc ctc ttg 286
 Met Glu Leu Ala Ala Leu Cys Arg Trp Gly Leu Leu Leu Ala Leu Leu
 1 5 10 15
 ccc ccc gga gcc gcg agc acc caa gtg tgc acc ggc aca gac atg aag 334
 Pro Pro Gly Ala Ala Ser Thr Gln Val Cys Thr Gly Thr Asp Met Lys
 20 25 30
 ctg cgg ctc cct gcc agt ccc gag acc cac ctg gac atg ctc cgc cac 382
 Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met Leu Arg His
 35 40 45
 ctc tac cag ggc tgc cag gtg gtg cag gga aac ctg gaa ctc acc tac 430
 Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr
 50 55 60
 ctg ccc acc aat gcc agc ctg tcc ttc ctg cag gat atc cag gag gtg 478
 Leu Pro Thr Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
 65 70 75 80
 cag ggc tac gtg ctc atc gct cac aac caa gtg agg cag gtc cca ctg 526
 Gln Gly Tyr Val Leu Ile Ala His Asn Gln Val Arg Gln Val Pro Leu
 85 90 95
 cag agg ctg cgg att gtg cga ggc acc cag ctc ttt gag gac aac tat 574
 Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr
 100 105 110
 gcc ctg gcc gtg cta gac aat gga gac ccg ctg aac aat acc acc cct 622
 Ala Leu Ala Val Leu Asp Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro
 115 120 125
 gtc aca ggg gcc tcc cca gga ggc ctg cgg gag ctg cag ctt cga agc 670
 Val Thr Gly Ala Ser Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser
 130 135 140
 ctc aca gag atc ttg aaa gga ggg gtc ttg atc cag cgg aac ccc cag 718
 Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Gln Arg Asn Pro Gln
 145 150 155 160
 ctc tgc tac cag gac acg att ttg tgg aag gac atc ttc cac aag aac 766
 Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp Ile Phe His Lys Asn
 165 170 175
 aac cag ctg gct ctc aca ctg ata gac acc aac cgc tct cgg gcc tgc 814
 Asn Gln Leu Ala Leu Thr Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys

180	185	190	
cac ccc tgt tct ccg atg tgt aag ggc tcc cgc tgc tgg gga gag agt His Pro Cys Ser Pro Met Cys Lys Gly Ser Arg Cys Trp Gly Glu Ser 195 200 205			862
tct gag gat tgt cag agc ctg acg cgc act gtc tgt gcc ggt ggc tgt Ser Glu Asp Cys Gln Ser Leu Thr Arg Thr Val Cys Ala Gly Gly Cys 210 215 220			910
gcc cgc tgc aag ggg cca ctg ccc act gac tgc tgc cat gag cag tgt Ala Arg Cys Lys Gly Pro Leu Pro Thr Asp Cys Cys His Glu Gln Cys 225 230 235 240			958
gct gcc ggc tgc acg ggc ccc aag cac tct gac tgc ctg gcc tgc ctc Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys Leu 245 250 255			1006
cac ttc aac cac agt ggc atc tgt gag ctg cac tgc cca gcc ctg gtc His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu Val 260 265 270			1054
acc tac aac aca gac acg ttt gag tcc atg ccc aat ccc gag ggc cgg Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Pro Asn Pro Glu Gly Arg 275 280 285			1102
tat aca ttc ggc gcc agc tgt gtg act gcc tgt ccc tac aac tac ctt Tyr Thr Phe Gly Ala Ser Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu 290 295 300			1150
tct acg gac gtg gga tcc tgc acc ctc gtc tgc ccc ctg cac aac caa Ser Thr Asp Val Gly Ser Cys Thr Leu Val Cys Pro Leu His Asn Gln 305 310 315 320			1198
gag gtg aca gca gag gat gga aca cag cgg tgt gag aag tgc agc aag Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys 325 330 335			1246
ccc tgt gcc cga gtg tgc tat ggt ctg ggc atg gag cac ttg cga gag Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg Glu 340 345 350			1294
gtg agg gca gtt acc agt gcc aat atc cag gag ttt gct ggc tgc aag Val Arg Ala Val Thr Ser Ala Asn Ile Gln Glu Phe Ala Gly Cys Lys 355 360 365			1342
aag atc ttt ggg agc ctg gca ttt ctg ccg gag agc ttt gat ggg gac Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp 370 375 380			1390
cca gcc tcc aac act gcc ccg ctc cag cca gag cag ctc caa gtg ttt Pro Ala Ser Asn Thr Ala Pro Leu Gln Pro Glu Gln Leu Gln Val Phe 385 390 395 400			1438
gag act ctg gaa gag atc aca ggt tac cta tac atc tca gca tgg ccg Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro 405 410 415			1486
gac agc ctg cct gac ctc agc gtc ttc cag aac ctg caa gta atc cgg Asp Ser Leu Pro Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg 420 425 430			1534
gga cga att ctg cac aat ggc gcc tac tgc ctg acc ctg caa ggg ctg Gly Arg Ile Leu His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu 435 440 445			1582
ggc atc agc tgg ctg ggg ctg cgc tca ctg agg gaa ctg ggc agt gga Gly Ile Ser Trp Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly 450 455 460			1630

450	455	460	
ctg gcc ctc atc cac cat aac acc cac ctc tgc ttc gtg cac acg gtg Leu Ala Leu Ile His His Asn Thr His Leu Cys Phe Val His Thr Val 465 470 475 480			1678
ccc tgg gac cag ctc ttt cgg aac ccg cac caa gct ctg ctc cac act Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His Thr 485 490 495			1726
gcc aac cgg cca gag gac gag tgt gtg ggc gag ggc ctg gcc tgc cac Ala Asn Arg Pro Glu Asp Glu Cys Val Gly Glu Gly Leu Ala Cys His 500 505 510			1774
cag ctg tgc gcc cga ggg cac tgc tgg ggt cca ggg ccc acc cag tgt Gln Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln Cys 515 520 525			1822
gtc aac tgc agc cag ttc ctt cgg ggc cag gag tgc gtg gag gaa tgc Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu Cys Val Glu Glu Cys 530 535 540			1870
cga gta ctg cag ggg ctc ccc agg gag tat gtg aat gcc agg cac tgt Arg Val Leu Gln Gly Leu Pro Arg Glu Tyr Val Asn Ala Arg His Cys 545 550 555 560			1918
ttg ccg tgc cac cct gag tgt cag ccc cag aat ggc tca gtg acc tgt Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Gly Ser Val Thr Cys 565 570 575			1966
ttt gga ccg gag gct gac cag tgt gtg gcc tgt gcc cac tat aag gac Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys Ala His Tyr Lys Asp 580 585 590			2014
cct ccc ttc tgc gtg gcc cgc tgc ccc agc ggt gtg aaa cct gac ctc Pro Pro Phe Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp Leu 595 600 605			2062
tcc tac atg ccc atc tgg aag ttt cca gat gag gag ggc gca tgc cag Ser Tyr Met Pro Ile Trp Lys Phe Pro Asp Glu Glu Gly Ala Cys Gln 610 615 620			2110
cct tgc ccc atc aac tgc acc cac tcc tgt gtg gac ctg gat gac aag Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Asp Lys 625 630 635 640			2158
ggc tgc ccc gcc gag cag aga gcc agc cct ctg acg tcc atc atc tct Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Leu Thr Ser Ile Ile Ser 645 650 655			2206
gcg gtg gtt ggc att ctg ctg gtc gtg gtc ttg ggg gtg gtc ttt ggg Ala Val Val Gly Ile Leu Leu Val Val Val Leu Gly Val Val Phe Gly 660 665 670			2254
atc ctc atc aag cga cgg cag cag aag atc cgg aag tac acg atg cgg Ile Leu Ile Lys Arg Arg Gln Gln Lys Ile Arg Lys Tyr Thr Met Arg 675 680 685			2302
aga ctg ctg cag gaa acg gag ctg gtg gag ccg ctg aca cct agc gga Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly 690 695 700			2350
gcg atg ccc aac cag gcg cag atg cgg atc ctg aaa gag acg gag ctg Ala Met Pro Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu 705 710 715 720			2398
agg aag gtg aag gtg ctt gga tct ggc gct ttt ggc aca gtc tac aag Arg Lys Val Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys 725 730 735 740			2446

	725	730	735	
ggc atc tgg atc cct gat ggg gag aat gtg aaa att cca gtg gcc atc				2494
Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile	740	745	750	
aaa gtg ttg agg gaa aac aca tcc ccc aaa gcc aac aaa gaa atc tta				2542
Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu	755	760	765	
gac gaa gca tac gtg atg gct ggt gtg ggc tcc cca tat gtc tcc cgc				2590
Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg	770	775	780	
ctt ctg ggc atc tgc ctg aca tcc acg gtg cag ctg gtg aca cag ctt				2638
Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu	785	790	795	800
atg ccc tat ggc tgc ctc tta gac cat gtc cgg gaa aac cgc gga cgc				2686
Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg Glu Asn Arg Gly Arg	805	810	815	
ctg ggc tcc cag gac ctg ctg aac tgg tgt atg cag att gcc aag ggg				2734
Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Met Gln Ile Ala Lys Gly	820	825	830	
atg agc tac ctg gag gat gtg cgg ctc gta cac agg gac ttg gcc gct				2782
Met Ser Tyr Leu Glu Asp Val Arg Leu Val His Arg Asp Leu Ala Ala	835	840	845	
cgg aac gtg ctg gtc aag agt ccc aac cat gtc aaa att aca gac ttc				2830
Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp Phe	850	855	860	
ggg ctg gct cgg ctg ctg gac att gac gag aca gag tac cat gca gat				2878
Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala Asp	865	870	875	880
ggg ggc aag gtg ccc atc aag tgg atg gcg ctg gag tcc att ctc cgc				2926
Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu Arg	885	890	895	
cgg cgg ttc acc cac cag agt gat gtg tgg agt tat ggt gtg act gtg				2974
Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr Val	900	905	910	
tgg gag ctg atg act ttt ggg gcc aaa cct tac gat ggg atc cca gcc				3022
Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro Ala	915	920	925	
cgg gag atc cct gac ctg ctg gaa aag ggg gag cgg ctg ccc cag ccc				3070
Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro	930	935	940	
ccc atc tgc acc att gat gtc tac atg atc atg gtc aaa tgt tgg atg				3118
Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met Val Lys Cys Trp Met	945	950	955	960
att gac tct gaa tgt cgg cca aga ttc cgg gag ttg gtg tct gaa ttc				3166
Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu Leu Val Ser Glu Phe	965	970	975	
tcc cgc atg gcc agg gac ccc cag cgc ttt gtg gtc atc cag aat gag				3214
Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn Glu	980	985	990	
gac ttg ggc cca gcc agt ccc ttg gac agc acc ttc tac cgc tca ctg				3262
Asp Leu Gly Pro Ala Ser Pro Leu Asp Ser Thr Phe Tyr Arg Ser Leu				

995	1000	1005	
ctg gag gac gat gac atg ggg Leu Glu Asp Asp Asp Met Gly 1010	gac ctg gtg gat gct Asp Leu Val Asp Ala 1015	gag gag tat Glu Glu Tyr 1020	3307
ctg gta ccc cag cag ggc ttc Leu Val Pro Gln Gln Gly Phe 1025	ttc tgt cca gac cct Phe Cys Pro Asp Pro 1030	gcc ccg ggc Ala Pro Gly 1035	3352
gct ggg ggc atg gtc cac cac Ala Gly Gly Met Val His His 1040	agg cac cgc agc tca Arg His Arg Ser Ser 1045	tct acc agg Ser Thr Arg 1050	3397
agt ggc ggt ggg gac ctg aca Ser Gly Gly Gly Asp Leu Thr 1055	cta ggg ctg gag ccc Leu Gly Leu Glu Pro 1060	tct gaa gag Ser Glu Glu 1065	3442
gag gcc ccc agg tct cca ctg Glu Ala Pro Arg Ser Pro Leu 1070	gca ccc tcc gaa ggg Ala Pro Ser Glu Gly 1075	gct ggc tcc Ala Gly Ser 1080	3487
gat gta ttt gat ggt gac ctg Asp Val Phe Asp Gly Asp Leu 1085	gga atg ggg gca gcc Gly Met Gly Ala Ala 1090	aag ggg ctg Lys Gly Leu 1095	3532
caa agc ctc ccc aca cat gac Gln Ser Leu Pro Thr His Asp 1100	ccc agc cct cta cag Pro Ser Pro Leu Gln 1105	cgg tac agt Arg Tyr Ser 1110	3577
gag gac ccc aca gta ccc ctg Glu Asp Pro Thr Val Pro Leu 1115	ccc tct gag act gat Pro Ser Glu Thr Asp 1120	ggc tac gtt Gly Tyr Val 1125	3622
gcc ccc ctg acc tgc agc ccc Ala Pro Leu Thr Cys Ser Pro 1130	cag cct gaa tat gtg Gln Pro Glu Tyr Val 1135	aac cag cca Asn Gln Pro 1140	3667
gat gtt cgg ccc cag ccc cct Asp Val Arg Pro Gln Pro Pro 1145	tcg ccc cga gag ggc Ser Pro Arg Glu Gly 1150	cct ctg cct Pro Leu Pro 1155	3712
gct gcc cga cct gct ggt gcc Ala Ala Arg Pro Ala Gly Ala 1160	act ctg gaa agg ccc Thr Leu Glu Arg Pro 1165	aag act ctc Lys Thr Leu 1170	3757
tcc cca ggg aag aat ggg gtc Ser Pro Gly Lys Asn Gly Val 1175	gtc aaa gac gtt ttt Val Lys Asp Val Phe 1180	gcc ttt ggg Ala Phe Gly 1185	3802
ggt gcc gtg gag aac ccc gag Gly Ala Val Glu Asn Pro Glu 1190	tac ttg aca ccc cag Tyr Leu Thr Pro Gln 1195	gga gga gct Gly Gly Ala 1200	3847
gcc cct cag ccc cac cct cct Ala Pro Gln Pro His Pro Pro 1205	cct gcc ttc agc cca Pro Ala Phe Ser Pro 1210	gcc ttc gac Ala Phe Asp 1215	3892
aac ctc tat tac tgg gac cag Asn Leu Tyr Tyr Trp Asp Gln 1220	gac cca cca gag cgg Asp Pro Pro Glu Arg 1225	ggg gct cca Gly Ala Pro 1230	3937
ccc agc acc ttc aaa ggg aca Pro Ser Thr Phe Lys Gly Thr 1235	cct acg gca gag aac Pro Thr Ala Glu Asn 1240	cca gag tac Pro Glu Tyr 1245	3982
ctg ggt ctg gac gtg cca gtg Leu Gly Leu Asp Val Pro Val	tga accagaaggc caagtccgca		4026

1250

1255

gaagccctga tgtgtcctca gggagcaggg aaggcctgac ttctgctggc atcaagaggt 4086
 gggagggccc tccgaccact tccaggggaa cctgccatgc caggaacctg tcctaaggaa 4146
 ccttccttcc tgcttgagtt ccagatggc tggaaggggt ccagcctcgt tggaagagga 4206
 acagcactgg ggagtctttg tggattctga ggcctgccc aatgagactc tagggtccag 4266
 tggatgccac agcccagctt ggccttttcc ttccagatcc tgggtactga aagccttagg 4326
 gaagctggcc tgagagggga agcgcccta agggagtgtc taagaacaaa agcgacccat 4386
 tcagagactg tcctgaaac ctagtactgc ccccatgag gaaggaacag caatgggtgc 4446
 agtatccagg ctttgtacag agtgcttttc tgtttagttt ttactttttt tgttttgttt 4506
 ttttaaagat gaaataaaga cccaggggga gaatgggtgt tgtatgggga ggcaagtgtg 4566
 gggggtcctt ctccacaccc actttgtcca ttgcaaata tttttggaa aacagcta 4624

<210> 11

<211> 1255

<212> PRT

<213> Homo sapiens

<400> 11

Met Glu Leu Ala Ala Leu Cys Arg Trp Gly Leu Leu Leu Ala Leu Leu
 1 5 10 15

Pro Pro Gly Ala Ala Ser Thr Gln Val Cys Thr Gly Thr Asp Met Lys
 20 25 30

Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met Leu Arg His
 35 40 45

Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr
 50 55 60

Leu Pro Thr Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
 65 70 75 80

Gln Gly Tyr Val Leu Ile Ala His Asn Gln Val Arg Gln Val Pro Leu
 85 90 95

Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr
 100 105 110

Ala Leu Ala Val Leu Asp Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro
 115 120 125

Val Thr Gly Ala Ser Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser
 130 135 140

Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Gln Arg Asn Pro Gln

145 150 155 160
 Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp Ile Phe His Lys Asn
 165 170 175
 Asn Gln Leu Ala Leu Thr Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys
 180 185 190
 His Pro Cys Ser Pro Met Cys Lys Gly Ser Arg Cys Trp Gly Glu Ser
 195 200 205
 Ser Glu Asp Cys Gln Ser Leu Thr Arg Thr Val Cys Ala Gly Gly Cys
 210 215 220
 Ala Arg Cys Lys Gly Pro Leu Pro Thr Asp Cys Cys His Glu Gln Cys
 225 230 235 240
 Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys Leu
 245 250 255
 His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu Val
 260 265 270
 Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Pro Asn Pro Glu Gly Arg
 275 280 285
 Tyr Thr Phe Gly Ala Ser Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu
 290 295 300
 Ser Thr Asp Val Gly Ser Cys Thr Leu Val Cys Pro Leu His Asn Gln
 305 310 315 320
 Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys
 325 330 335
 Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg Glu
 340 345 350
 Val Arg Ala Val Thr Ser Ala Asn Ile Gln Glu Phe Ala Gly Cys Lys
 355 360 365
 Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp
 370 375 380
 Pro Ala Ser Asn Thr Ala Pro Leu Gln Pro Glu Gln Leu Gln Val Phe
 385 390 395 400
 Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro
 405 410 415
 Asp Ser Leu Pro Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg

420 425 430
 Gly Arg Ile Leu His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu
 435 440 445
 Gly Ile Ser Trp Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly
 450 455 460
 Leu Ala Leu Ile His His Asn Thr His Leu Cys Phe Val His Thr Val
 465 470 475 480
 Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His Thr
 485 490 495
 Ala Asn Arg Pro Glu Asp Glu Cys Val Gly Glu Gly Leu Ala Cys His
 500 505 510
 Gln Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln Cys
 515 520 525
 Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu Cys Val Glu Glu Cys
 530 535 540
 Arg Val Leu Gln Gly Leu Pro Arg Glu Tyr Val Asn Ala Arg His Cys
 545 550 555 560
 Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Gly Ser Val Thr Cys
 565 570 575
 Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys Ala His Tyr Lys Asp
 580 585 590
 Pro Pro Phe Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp Leu
 595 600 605
 Ser Tyr Met Pro Ile Trp Lys Phe Pro Asp Glu Glu Gly Ala Cys Gln
 610 615 620
 Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Asp Lys
 625 630 635 640
 Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Leu Thr Ser Ile Ile Ser
 645 650 655
 Ala Val Val Gly Ile Leu Leu Val Val Val Leu Gly Val Val Phe Gly
 660 665 670
 Ile Leu Ile Lys Arg Arg Gln Gln Lys Ile Arg Lys Tyr Thr Met Arg
 675 680 685
 Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly

690

695

700

Ala Met Pro Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu
705 710 715 720

Arg Lys Val Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys
725 730 735

Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile
740 745 750

Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu
755 760 765

Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg
770 775 780

Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu
785 790 795 800

Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg Glu Asn Arg Gly Arg
805 810 815

Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Met Gln Ile Ala Lys Gly
820 825 830

Met Ser Tyr Leu Glu Asp Val Arg Leu Val His Arg Asp Leu Ala Ala
835 840 845

Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp Phe
850 855 860

Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala Asp
865 870 875 880

Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu Arg
885 890 895

Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr Val
900 905 910

Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro Ala
915 920 925

Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro
930 935 940

Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met Val Lys Cys Trp Met
945 950 955 960

Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu Leu Val Ser Glu Phe

965

970

975

Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn Glu
 980 985 990

Asp Leu Gly Pro Ala Ser Pro Leu Asp Ser Thr Phe Tyr Arg Ser Leu
 995 1000 1005

Leu Glu Asp Asp Asp Met Gly Asp Leu Val Asp Ala Glu Glu Tyr
 1010 1015 1020

Leu Val Pro Gln Gln Gly Phe Phe Cys Pro Asp Pro Ala Pro Gly
 1025 1030 1035

Ala Gly Gly Met Val His His Arg His Arg Ser Ser Ser Thr Arg
 1040 1045 1050

Ser Gly Gly Gly Asp Leu Thr Leu Gly Leu Glu Pro Ser Glu Glu
 1055 1060 1065

Glu Ala Pro Arg Ser Pro Leu Ala Pro Ser Glu Gly Ala Gly Ser
 1070 1075 1080

Asp Val Phe Asp Gly Asp Leu Gly Met Gly Ala Ala Lys Gly Leu
 1085 1090 1095

Gln Ser Leu Pro Thr His Asp Pro Ser Pro Leu Gln Arg Tyr Ser
 1100 1105 1110

Glu Asp Pro Thr Val Pro Leu Pro Ser Glu Thr Asp Gly Tyr Val
 1115 1120 1125

Ala Pro Leu Thr Cys Ser Pro Gln Pro Glu Tyr Val Asn Gln Pro
 1130 1135 1140

Asp Val Arg Pro Gln Pro Pro Ser Pro Arg Glu Gly Pro Leu Pro
 1145 1150 1155

Ala Ala Arg Pro Ala Gly Ala Thr Leu Glu Arg Pro Lys Thr Leu
 1160 1165 1170

Ser Pro Gly Lys Asn Gly Val Val Lys Asp Val Phe Ala Phe Gly
 1175 1180 1185

Gly Ala Val Glu Asn Pro Glu Tyr Leu Thr Pro Gln Gly Gly Ala
 1190 1195 1200

Ala Pro Gln Pro His Pro Pro Pro Ala Phe Ser Pro Ala Phe Asp
 1205 1210 1215

Asn Leu Tyr Tyr Trp Asp Gln Asp Pro Pro Glu Arg Gly Ala Pro

1220 1225 1230

Pro Ser Thr Phe Lys Gly Thr Pro Thr Ala Glu Asn Pro Glu Tyr
1235 1240 1245

Leu Gly Leu Asp Val Pro Val
1250 1255

<210> 12
<211> 4998
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (180)..(3950)

<400> 12
cgaggaagtg cggcgtgaag ttgtggagct gagattgccc gccgctgggg acccgagacc 60
caggagcgcc ccttcccagg cggcccccttc cggcgccgcg cctgtgcctg ccctcgccgc 120
gccccgcgcc cgcagcctgg tccagcctga gccatggggc cggagccgca gtgatcatc 179
atg gag ctg gcg gcc tgg tgc cgt tgg ggg ttc ctc ctc gcc ctc ctg 227
Met Glu Leu Ala Ala Trp Cys Arg Trp Gly Phe Leu Leu Ala Leu Leu
1 5 10 15
tcc ccc gga gcc gcg ggt acc caa gtg tgt acc ggt acc gac atg aag 275
Ser Pro Gly Ala Ala Gly Thr Gln Val Cys Thr Gly Thr Asp Met Lys
20 25 30
ttg cga ctc cct gcc agt cct gag acc cac ctg gac atg ctt cgc cac 323
Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met Leu Arg His
35 40 45
ctc tac cag ggc tgt cag gtg gtg cag ggc aat ttg gag ctt acc tac 371
Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr
50 55 60
ctg ccc gcc aat gcc agc ctc tca ttc ctg cag gac atc cag gaa gtc 419
Leu Pro Ala Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
65 70 75 80
cag gga tac atg ctc atc gct cac aac cga gtg aaa cac gtc cca ctg 467
Gln Gly Tyr Met Leu Ile Ala His Asn Arg Val Lys His Val Pro Leu
85 90 95
cag agg ttg cgc atc gtg aga ggg act cag ctc ttt gag gac aag tat 515
Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Lys Tyr
100 105 110
gcc ctg gct gtg cta gac aac cga gac cct ttg gac aac gtc acc acc 563
Ala Leu Ala Val Leu Asp Asn Arg Asp Pro Leu Asp Asn Val Thr Thr
115 120 125
gcc gcc cca ggc aga acc cca gaa ggg ctg cgg gag ctg cag ctt cga 611
Ala Ala Pro Gly Arg Thr Pro Glu Gly Leu Arg Glu Leu Gln Leu Arg
130 135 140
agt ctc aca gag atc ttg aag gga gga gtt ttg atc cgt ggg aac cct 659
Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Arg Gly Asn Pro
145 150 155 160

cag ctc tgc tac cag gac atg gtt ttg tgg aag gat gtc ctc cgt aag Gln Leu Cys Tyr Gln Asp Met Val Leu Trp Lys Asp Val Leu Arg Lys 165 170 175	707
aat aac cag ctg gct cct gtc gac atg gac acc aat cgt tcc cgg gcc. Asn Asn Gln Leu Ala Pro Val Asp Met Asp Thr Asn Arg Ser Arg Ala 180 185 190	755
tgt cca cct tgt gcc cca acc tgc aaa gac aat cac tgt tgg ggt gag Cys Pro Pro Cys Ala Pro Thr Cys Lys Asp Asn His Cys Trp Gly Glu 195 200 205	803
agt cct gaa gac tgt cag atc ttg act ggc acc atc tgt act agt ggc Ser Pro Glu Asp Cys Gln Ile Leu Thr Gly Thr Ile Cys Thr Ser Gly 210 215 220	851
tgt gcc cgg tgc aag ggc cgg ctg ccc act gac tgt tgc cat gag cag Cys Ala Arg Cys Lys Gly Arg Leu Pro Thr Asp Cys Cys His Glu Gln 225 230 235 240	899
tgt gct gca ggc tgc acg ggt ccc aag cat tct gac tgc ctg gcc tgc Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys 245 250 255	947
ctc cac ttc aat cat agt ggt atc tgt gag ctg cac tgc ccg gcc ctc Leu His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu 260 265 270	995
atc acc tac aac aca gac acc ttc gag tcc atg ctc aac cct gag ggt Ile Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Leu Asn Pro Glu Gly 275 280 285	1043
cgc tac acc ttt ggt gcc agc tgt gtg acc acc tgc ccc tac aac tac Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Thr Cys Pro Tyr Asn Tyr 290 295 300	1091
ctc tcc acg gaa gtg gga tcc tgc act ctg gtc tgt ccc ccg aac aac Leu Ser Thr Glu Val Gly Ser Cys Thr Leu Val Cys Pro Pro Asn Asn 305 310 315 320	1139
caa gag gtc aca gct gag gac gga aca cag cgg tgt gag aaa tgc agc Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser 325 330 335	1187
aag ccc tgt gct gga gta tgc tat ggt ctg ggc atg gag cac ctc cga Lys Pro Cys Ala Gly Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg 340 345 350	1235
ggg gcg agg gcc atc acc agt gac aat atc cag gag ttt gct ggc tgc Gly Ala Arg Ala Ile Thr Ser Asp Asn Ile Gln Glu Phe Ala Gly Cys 355 360 365	1283
aag aag atc ttt ggg agc ctg gca ttt ttg ccg gag agc ttt gat ggg Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly 370 375 380	1331
aac ccc tcc tcc ggc gtt gcc cca ctg aag cca gag cat ctc caa gtg Asn Pro Ser Ser Gly Val Ala Pro Leu Lys Pro Glu His Leu Gln Val 385 390 395 400	1379
ttc gaa acc ctg gag gag atc aca ggt tac cta tac att tca gca tgg Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp 405 410 415	1427
cca gag agc ttc caa gac ctc agt gtc ttc cag aac ctt cgg gtc att Pro Glu Ser Phe Gln Asp Leu Ser Val Phe Gln Asn Leu Arg Val Ile	1475

420	425	430	
cgg gga cgg att ctc cat gat ggt gct tac tca ttg acg ttg caa ggc Arg Gly Arg Ile Leu His Asp Gly Ala Tyr Ser Leu Thr Leu Gln Gly 435 440 445			1523
ctg ggg att cac tca ctg ggg cta cgc tca ctg cgg gag ctg ggc agt Leu Gly Ile His Ser Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser 450 455 460			1571
gga ttg gct ctc att cac cgc aac acc cat ctc tgc ttt gta aac act Gly Leu Ala Leu Ile His Arg Asn Thr His Leu Cys Phe Val Asn Thr 465 470 475 480			1619
gta cct tgg gac cag ctc ttc cgg aac ccg cac cag gcc cta ctc cac Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His 485 490 495			1667
agt ggg aac cgg cca gaa gag gca tgt ggt ctt gag ggc ttg gtc tgt Ser Gly Asn Arg Pro Glu Glu Ala Cys Gly Leu Glu Gly Leu Val Cys 500 505 510			1715
aac tca ctg tgt gcc cgt ggg cac tgc tgg ggg cca ggg ccc acc cag Asn Ser Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln 515 520 525			1763
tgt gtc aac tgc agt cag ttc ctc cgg ggc cag gag tgt gtg gag gag Cys Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu Cys Val Glu Glu 530 535 540			1811
tgc cga gta tgg aag ggg ctc ccc agg gag tat gtg agg ggc aag cac Cys Arg Val Trp Lys Gly Leu Pro Arg Glu Tyr Val Arg Gly Lys His 545 550 555 560			1859
tgt ctg cca tgc cac ccc gag tgt cag cct caa aac agc tcg gag acc Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Ser Ser Glu Thr 565 570 575			1907
tgc tat gga tcg gag gct gac cag tgt gag gct tgt gcc cac tac aag Cys Tyr Gly Ser Glu Ala Asp Gln Cys Glu Ala Cys Ala His Tyr Lys 580 585 590			1955
gac tca tct tcc tgt gtg gct cgc tgc ccc agt ggt gtg aag cca gac Asp Ser Ser Ser Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp 595 600 605			2003
ctc tcc tac atg cct atc tgg aag tac ccg gat gag gag ggc ata tgt Leu Ser Tyr Met Pro Ile Trp Lys Tyr Pro Asp Glu Glu Gly Ile Cys 610 615 620			2051
cag cca tgc ccc atc aac tgc acc cac tca tgt gtg gac ctg gac gaa Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Glu 625 630 635 640			2099
cga ggc tgc cca gca gag cag aga gcc agc cca gtg aca ttc atc att Arg Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Val Thr Phe Ile Ile 645 650 655			2147
gca act gtg gtg ggc gtc ctg ttg ttc ctg atc ata gtg gtg gtc att Ala Thr Val Val Gly Val Leu Leu Phe Leu Ile Ile Val Val Val Ile 660 665 670			2195
gga atc cta atc aaa cga agg cga cag aag atc cgg aag tat acc atg Gly Ile Leu Ile Lys Arg Arg Gln Lys Ile Arg Lys Tyr Thr Met 675 680 685			2243
cgt agg ctg ctg cag gag acc gag ctg gtg gag ccg ctg acg ccc agt Arg Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser			2291

690	695	700	
gga gct gtg ccc aac cag gct cag atg cgg atc cta aag gag aca gag Gly Ala Val Pro Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu 705 710 715 720			2339
cta agg aag ctg aag gtg ctt ggg tca gga gcc ttc ggc act gtc tac Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr 725 730 735			2387
aag ggc atc tgg atc cca gat ggg gag aac gtg aaa atc ccc gtg gcc Lys Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala 740 745 750			2435
atc aag gtg ttg agg gaa aac aca tct cct aaa gct aac aaa gaa atc Ile Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile 755 760 765			2483
cta gat gaa gcg tac gtc atg gct ggt gtg ggt tct cca tat gtg tcc Leu Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser 770 775 780			2531
cgc ctc ctg ggc atc tgc ctg aca tcc aca gtg cag ctg gtg aca cag Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln 785 790 795 800			2579
ctt atg ccc tat ggc tgc ctt ctg gac cat gtc cga gaa cac cga ggt Leu Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg Glu His Arg Gly 805 810 815			2627
cgc tta ggc tcc cag gac ctg ctc aac tgg tgt gtt cag att gcc aag Arg Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Val Gln Ile Ala Lys 820 825 830			2675
ggg atg agc tac ctg gag gaa gtt cgg ctt gtt cac agg gac cta gct Gly Met Ser Tyr Leu Glu Glu Val Arg Leu Val His Arg Asp Leu Ala 835 840 845			2723
gcc cga aac gtg cta gtc aag agt ccc aac cac gtc aag att acc gac Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp 850 855 860			2771
ttc ggg ctg gca cgg ctg ctg gac att gat gag act gaa tac cat gca Phe Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala 865 870 875 880			2819
gat ggg ggc aag gtg ccc atc aag tgg atg gca ttg gaa tct att ctc Asp Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu 885 890 895			2867
aga cgc cgg ttc acc cat cag agt gat gtg tgg agc tat ggt gtg act Arg Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr 900 905 910			2915
gtg tgg gag ctg atg acc ttt ggg gcc aaa cct tac gat ggg atc cca Val Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro 915 920 925			2963
gct cgg gag atc cct gat ttg ctg gag aag gga gaa cgc cta cct cag Ala Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln 930 935 940			3011
cct cca atc tgc acc atc gac gtc tac atg atc atg gtc aaa tgt tgg Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met Val Lys Cys Trp 945 950 955 960			3059
atg att gac tcc gaa tgt cgc ccg aga ttc cgg gag ttg gta tca gaa Met Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu Leu Val Ser Glu 965 970 975 980			3107

965	970	975	
ttc tcc cgt atg gca agg gac ccc cag cgc ttt gtg gtc atc cag aac			3155
Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn			
980	985	990	
gag gac tta ggc ccc tcc agc ccc atg gac agc acc ttc tac cgt tca			3203
Glu Asp Leu Gly Pro Ser Ser Pro Met Asp Ser Thr Phe Tyr Arg Ser			
995	1000	1005	
ctg ctg gag gat gat gac atg ggg gag ctg gtc gat gct gaa gag			3248
Leu Leu Glu Asp Asp Asp Met Gly Glu Leu Val Asp Ala Glu Glu			
1010	1015	1020	
tac ctg gta ccc cag cag gga ttc ttc tcc cca gac cct gcc cta			3293
Tyr Leu Val Pro Gln Gln Gly Phe Phe Ser Pro Asp Pro Ala Leu			
1025	1030	1035	
ggc act ggg agc aca gcc cac cgc aga cac cgc agc tcg tcg gcc			3338
Gly Thr Gly Ser Thr Ala His Arg Arg His Arg Ser Ser Ser Ala			
1040	1045	1050	
agg agt ggc ggt ggt gag ctg aca ctg ggc ctg gag ccc tcg gaa			3383
Arg Ser Gly Gly Gly Glu Leu Thr Leu Gly Leu Glu Pro Ser Glu			
1055	1060	1065	
gaa gag ccc ccc aga tct cca ctg gct ccc tcc gaa ggg gct ggc			3428
Glu Glu Pro Pro Arg Ser Pro Leu Ala Pro Ser Glu Gly Ala Gly			
1070	1075	1080	
tcc gat gtg ttt gat ggt gac ctg gca gtg ggg gta acc aaa gga			3473
Ser Asp Val Phe Asp Gly Asp Leu Ala Val Gly Val Thr Lys Gly			
1085	1090	1095	
ctg cag agc ctc tct cca cat gac ctc agc cct cta cag cgg tac			3518
Leu Gln Ser Leu Ser Pro His Asp Leu Ser Pro Leu Gln Arg Tyr			
1100	1105	1110	
agt gag gat ccc aca tta cct ctg ccc ccc gag act gat ggc tac			3563
Ser Glu Asp Pro Thr Leu Pro Leu Pro Pro Glu Thr Asp Gly Tyr			
1115	1120	1125	
gtt gct ccc ctg gcc tgc agc ccc cag ccc gag tat gtg aac cag			3608
Val Ala Pro Leu Ala Cys Ser Pro Gln Pro Glu Tyr Val Asn Gln			
1130	1135	1140	
cca gag gtt cgg cct cag tct ccc ttg acc cca gag ggt cct ccg			3653
Pro Glu Val Arg Pro Gln Ser Pro Leu Thr Pro Glu Gly Pro Pro			
1145	1150	1155	
cct ccc atc cga cct gct ggt gct act cta gaa aga ccc aag act			3698
Pro Pro Ile Arg Pro Ala Gly Ala Thr Leu Glu Arg Pro Lys Thr			
1160	1165	1170	
ctc tct cct ggg aaa aat ggg gtt gtc aaa gac gtt ttt gcc ttt			3743
Leu Ser Pro Gly Lys Asn Gly Val Val Lys Asp Val Phe Ala Phe			
1175	1180	1185	
ggg ggt gct gtg gag aac cct gaa tac tta gca ccc aga gca ggc			3788
Gly Gly Ala Val Glu Asn Pro Glu Tyr Leu Ala Pro Arg Ala Gly			
1190	1195	1200	
act gcc tct cag ccc cac cct tct cct gcc ttc agc cca gcc ttt			3833
Thr Ala Ser Gln Pro His Pro Ser Pro Ala Phe Ser Pro Ala Phe			
1205	1210	1215	
gac aac ctc tat tac tgg gac cag aac tca tcg gag cag ggt cct			3878
Asp Asn Leu Tyr Tyr Trp Asp Gln Asn Ser Ser Glu Gln Gly Pro			

```

1220      1225      1230
cca cca agt acc ttt gaa ggg acc ccc act gca gag aac cct gag      3923
Pro Pro Ser Thr Phe Glu Gly Thr Pro Thr Ala Glu Asn Pro Glu
1235      1240      1245

tac cta ggc ctg gat gtg cca gta tga ggtcacatgt gcagacatcc      3970
Tyr Leu Gly Leu Asp Val Pro Val
1250      1255

tctgtcttca gagtggggaa ggaaggccta acttgtggto tccatcgccc gccacaaagc      4030
agggagaagg tcctctggcc acatgacatc cagggcagcc ggctatgcca ggaacgtgcc      4090
ctgaggaacc tcgctcgatg cttcaatcct gagtgggtaa gagggccccc cctggccgga      4150
agagacagca cactgttcag cccagagga ttacagaccc tgactgccct gacagactgt      4210
aggggtccagt ggggtattcct tacctggcct ggctctcttg gttctgaaga ctgaggggag      4270
ctcagcctgc aagggaggag gccccagggtg aatatcctgg gagcaggaca cccactagg      4330
actgaggcac gtgcatccca agagggggac agcacttgca ccagactgg tctttgtaca      4390
gagtttattt tggtctgttt ttacttttgt ttttgtttt ttttttaaag atgaaataag      4450
gatacagtgg gagagtgggt gttatatgaa agtcgggggg tgctgtcccc tttctccatt      4510
tgcaatgaga tttgtaaaat aactggaccc cagcctatgt ctgagagtgg tcccgggccc      4570
gggtcaaaccg tattgctcat ctgacacaca gctcctcctg gagtgagtgt gtagagatct      4630
tccaaaagtt tgagacaatt tggctttggg cttgagggac tggggagtta ggattccttc      4690
tgaaggccct ttggcaacag ggtcattctc cggtggacac actcatacca aggctacccc      4750
cagaatactc cggtggacac actcattcca aggctacccc cagaatgaag tcctgtcttc      4810
ccagtgggag agggggagctt gtggagagca ttgccatgtg acttggtttc cttgccttag      4870
aaagaagtat ccatccagga aaacccacc cactaggtgt tagtcccacc cactaggtgt      4930
tagcagggcc agactgacct gtgtgcccc cgcacaggct ggacataaac acacgccagt      4990
tgacacaa .      4998

```

```

<210> 13
<211> 1256
<212> PRT
<213> Mus musculus

```

```

<400> 13

```

```

Met Glu Leu Ala Ala Trp Cys Arg Trp Gly Phe Leu Leu Ala Leu Leu
1          5          10          15

```

```

Ser Pro Gly Ala Ala Gly Thr Gln Val Cys Thr Gly Thr Asp Met Lys
          20          25          30

```

```

Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met Leu Arg His
35          40          45

```

```

Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr
50          55          60

```

Leu Pro Ala Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
65 70 75 80

Gln Gly Tyr Met Leu Ile Ala His Asn Arg Val Lys His Val Pro Leu
85 90 95

Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Lys Tyr
100 105 110

Ala Leu Ala Val Leu Asp Asn Arg Asp Pro Leu Asp Asn Val Thr Thr
115 120 125

Ala Ala Pro Gly Arg Thr Pro Glu Gly Leu Arg Glu Leu Gln Leu Arg
130 135 140

Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Arg Gly Asn Pro
145 150 155 160

Gln Leu Cys Tyr Gln Asp Met Val Leu Trp Lys Asp Val Leu Arg Lys
165 170 175

Asn Asn Gln Leu Ala Pro Val Asp Met Asp Thr Asn Arg Ser Arg Ala
180 185 190

Cys Pro Pro Cys Ala Pro Thr Cys Lys Asp Asn His Cys Trp Gly Glu
195 200 205

Ser Pro Glu Asp Cys Gln Ile Leu Thr Gly Thr Ile Cys Thr Ser Gly
210 215 220

Cys Ala Arg Cys Lys Gly Arg Leu Pro Thr Asp Cys Cys His Glu Gln
225 230 235 240

Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys
245 250 255

Leu His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu
260 265 270

Ile Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Leu Asn Pro Glu Gly
275 280 285

Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Thr Cys Pro Tyr Asn Tyr
290 295 300

Leu Ser Thr Glu Val Gly Ser Cys Thr Leu Val Cys Pro Pro Asn Asn
305 310 315 320

Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser
325 330 335

Lys Pro Cys Ala Gly Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg
 340 345 350
 Gly Ala Arg Ala Ile Thr Ser Asp Asn Ile Gln Glu Phe Ala Gly Cys
 355 360 365
 Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly
 370 375 380
 Asn Pro Ser Ser Gly Val Ala Pro Leu Lys Pro Glu His Leu Gln Val
 385 390 395 400
 Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp
 405 410 415
 Pro Glu Ser Phe Gln Asp Leu Ser Val Phe Gln Asn Leu Arg Val Ile
 420 425 430
 Arg Gly Arg Ile Leu His Asp Gly Ala Tyr Ser Leu Thr Leu Gln Gly
 435 440 445
 Leu Gly Ile His Ser Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser
 450 455 460
 Gly Leu Ala Leu Ile His Arg Asn Thr His Leu Cys Phe Val Asn Thr
 465 470 475 480
 Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His
 485 490 495
 Ser Gly Asn Arg Pro Glu Glu Ala Cys Gly Leu Glu Gly Leu Val Cys
 500 505 510
 Asn Ser Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln
 515 520 525
 Cys Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu Cys Val Glu Glu
 530 535 540
 Cys Arg Val Trp Lys Gly Leu Pro Arg Glu Tyr Val Arg Gly Lys His
 545 550 555 560
 Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Ser Ser Glu Thr
 565 570 575
 Cys Tyr Gly Ser Glu Ala Asp Gln Cys Glu Ala Cys Ala His Tyr Lys
 580 585 590
 Asp Ser Ser Ser Cys Val Ala Arg Cys Pro Ser Gly Val Lys Pro Asp
 595 600 605

Leu Ser Tyr Met Pro Ile Trp Lys Tyr Pro Asp Glu Glu Gly Ile Cys
 610 615 620

Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu Asp Glu
 625 630 635 640

Arg Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Val Thr Phe Ile Ile
 645 650 655

Ala Thr Val Val Gly Val Leu Leu Phe Leu Ile Ile Val Val Val Ile
 660 665 670

Gly Ile Leu Ile Lys Arg Arg Arg Gln Lys Ile Arg Lys Tyr Thr Met
 675 680 685

Arg Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser
 690 695 700

Gly Ala Val Pro Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu
 705 710 715 720

Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr
 725 730 735

Lys Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala
 740 745 750

Ile Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile
 755 760 765

Leu Asp Glu Ala Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser
 770 775 780

Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln
 785 790 795 800

Leu Met Pro Tyr Gly Cys Leu Leu Asp His Val Arg Glu His Arg Gly
 805 810 815

Arg Leu Gly Ser Gln Asp Leu Leu Asn Trp Cys Val Gln Ile Ala Lys
 820 825 830

Gly Met Ser Tyr Leu Glu Glu Val Arg Leu Val His Arg Asp Leu Ala
 835 840 845

Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp
 850 855 860

Phe Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala
 865 870 875 880

Asp Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu
885 890 895

Arg Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr
900 905 910

Val Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro
915 920 925

Ala Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln
930 935 940

Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met Val Lys Cys Trp
945 950 955 960

Met Ile Asp Ser Glu Cys Arg Pro Arg Phe Arg Glu Leu Val Ser Glu
965 970 975

Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn
980 985 990

Glu Asp Leu Gly Pro Ser Ser Pro Met Asp Ser Thr Phe Tyr Arg Ser
995 1000 1005

Leu Leu Glu Asp Asp Asp Met Gly Glu Leu Val Asp Ala Glu Glu
1010 1015 1020

Tyr Leu Val Pro Gln Gln Gly Phe Phe Ser Pro Asp Pro Ala Leu
1025 1030 1035

Gly Thr Gly Ser Thr Ala His Arg Arg His Arg Ser Ser Ser Ala
1040 1045 1050

Arg Ser Gly Gly Gly Glu Leu Thr Leu Gly Leu Glu Pro Ser Glu
1055 1060 1065

Glu Glu Pro Pro Arg Ser Pro Leu Ala Pro Ser Glu Gly Ala Gly
1070 1075 1080

Ser Asp Val Phe Asp Gly Asp Leu Ala Val Gly Val Thr Lys Gly
1085 1090 1095

Leu Gln Ser Leu Ser Pro His Asp Leu Ser Pro Leu Gln Arg Tyr
1100 1105 1110

Ser Glu Asp Pro Thr Leu Pro Leu Pro Pro Glu Thr Asp Gly Tyr
1115 1120 1125

Val Ala Pro Leu Ala Cys Ser Pro Gln Pro Glu Tyr Val Asn Gln
1130 1135 1140

Pro Glu Val Arg Pro Gln Ser Pro Leu Thr Pro Glu Gly Pro Pro
1145 1150 1155

Pro Pro Ile Arg Pro Ala Gly Ala Thr Leu Glu Arg Pro Lys Thr
1160 1165 1170

Leu Ser Pro Gly Lys Asn Gly Val Val Lys Asp Val Phe Ala Phe
1175 1180 1185

Gly Gly Ala Val Glu Asn Pro Glu Tyr Leu Ala Pro Arg Ala Gly
1190 1195 1200

Thr Ala Ser Gln Pro His Pro Ser Pro Ala Phe Ser Pro Ala Phe
1205 1210 1215

Asp Asn Leu Tyr Tyr Trp Asp Gln Asn Ser Ser Glu Gln Gly Pro
1220 1225 1230

Pro Pro Ser Thr Phe Glu Gly Thr Pro Thr Ala Glu Asn Pro Glu
1235 1240 1245

Tyr Leu Gly Leu Asp Val Pro Val
1250 1255

<210> 14
<211> 5511
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (194)..(4222)

<400> 14
acacacacac acccctcccc tgccatccct ccccggaactc cggctccggc tccgattgca 60
atttgcaacc tccgctgccc tcgccgcagc agccaccaat tcgccagcgg ttcagggtggc 120
tcttgccctcg atgtcctagc ctagggggccc ccggggccgga cttggctggg ctcccttcac 180
cctctgcgga gtc atg agg gcg aac gac gct ctg cag gtg ctg ggc ttg 229
Met Arg Ala Asn Asp Ala Leu Gln Val Leu Gly Leu
1 5 10
ctt ttc agc ctg gcc cgg ggc tcc gag gtg ggc aac tct cag gca gtg 277
Leu Phe Ser Leu Ala Arg Gly Ser Glu Val Gly Asn Ser Gln Ala Val
15 20 25
tgt cct ggg act ctg aat ggc ctg agt gtg acc ggc gat gct gag aac 325
Cys Pro Gly Thr Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Glu Asn
30 35 40
caa tac cag aca ctg tac aag ctc tac gag agg tgt gag gtg gtg atg 373
Gln Tyr Gln Thr Leu Tyr Lys Leu Tyr Glu Arg Cys Glu Val Val Met
45 50 55 60

ggg aac ctt gag att gtg ctc acg gga cac aat gcc gac ctc tcc ttc 421
 Gly Asn Leu Glu Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe
 65 70 75

ctg cag tgg att cga gaa gtg aca ggc tat gtc ctc gtg gcc atg aat 469
 Leu Gln Trp Ile Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn
 80 85 90

gaa ttc tct act cta cca ttg ccc aac ctc cgc gtg gtg cga ggg acc 517
 Glu Phe Ser Thr Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr
 95 100 105

cag gtc tac gat ggg aag ttt gcc atc ttc gtc atg ttg aac tat aac 565
 Gln Val Tyr Asp Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn
 110 115 120

acc aac tcc agc cac gct ctg cgc cag ctc cgc ttg act cag ctc acc 613
 Thr Asn Ser Ser His Ala Leu Arg Gln Leu Arg Leu Thr Gln Leu Thr
 125 130 135 140

gag att ctg tca ggg ggt gtt tat att gag aag aac gat aag ctt tgt 661
 Glu Ile Leu Ser Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys
 145 150 155

cac atg gac aca att gac tgg agg gac atc gtg agg gac cga gat gct 709
 His Met Asp Thr Ile Asp Trp Arg Asp Ile Val Arg Asp Arg Asp Ala
 160 165 170

gag ata gtg gtg aag gac aat ggc aga agc tgt ccc ccc tgt cat gag 757
 Glu Ile Val Val Lys Asp Asn Gly Arg Ser Cys Pro Pro Cys His Glu
 175 180 185

gtt tgc aag ggg cga tgc tgg ggt cct gga tca gaa gac tgc cag aca 805
 Val Cys Lys Gly Arg Cys Trp Gly Pro Gly Ser Glu Asp Cys Gln Thr
 190 195 200

ttg acc aag acc atc tgt gct cct cag tgt aat ggt cac tgc ttt ggg 853
 Leu Thr Lys Thr Ile Cys Ala Pro Gln Cys Asn Gly His Cys Phe Gly
 205 210 215 220

ccc aac ccc aac cag tgc tgc cat gat gag tgt gcc ggg ggc tgc tca 901
 Pro Asn Pro Asn Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser
 225 230 235

ggc cct cag gac aca gac tgc ttt gcc tgc cgg cac ttc aat gac agt 949
 Gly Pro Gln Asp Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser
 240 245 250

gga gcc tgt gta cct cgc tgt cca cag cct ctt gtc tac aac aag cta 997
 Gly Ala Cys Val Pro Arg Cys Pro Gln Pro Leu Val Tyr Asn Lys Leu
 255 260 265

act ttc cag ctg gaa ccc aat ccc cac acc aag tat cag tat gga gga 1045
 Thr Phe Gln Leu Glu Pro Asn Pro His Thr Lys Tyr Gln Tyr Gly Gly
 270 275 280

gtt tgt gta gcc agc tgt ccc cat aac ttt gtg gtg gat caa aca tcc 1093
 Val Cys Val Ala Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Ser
 285 290 295 300

tgt gtc agg gcc tgt cct cct gac aag atg gaa gta gat aaa aat ggg 1141
 Cys Val Arg Ala Cys Pro Pro Asp Lys Met Glu Val Asp Lys Asn Gly
 305 310 315

ctc aag atg tgt gag cct tgt ggg gga cta tgt ccc aaa gcc tgt gag 1189
 Leu Lys Met Cys Glu Pro Cys Gly Gly Leu Cys Pro Lys Ala Cys Glu
 320 325 330

gga aca ggc tct ggg agc cgc ttc cag act gtg gac tcg agc aac att Gly Thr Gly Ser Gly Ser Arg Phe Gln Thr Val Asp Ser Ser Asn Ile 335 340 345	1237
gat gga ttt gtg aac tgc acc aag atc ctg ggc aac ctg gac ttt ctg Asp Gly Phe Val Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu 350 355 360	1285
atc acc ggc ctc aat gga gac ccc tgg cac aag atc cct gcc ctg gac Ile Thr Gly Leu Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp 365 370 375 380	1333
cca gag aag ctc aat gtc ttc cgg aca gta cgg gag atc aca ggt tac Pro Glu Lys Leu Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr 385 390 395	1381
ctg aac atc cag tcc tgg ccg ccc cac atg cac aac ttc agt gtt ttt Leu Asn Ile Gln Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe 400 405 410	1429
tcc aat ttg aca acc att gga ggc aga agc ctc tac aac cgg ggc ttc Ser Asn Leu Thr Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe 415 420 425	1477
tca ttg ttg atc atg aag aac ttg aat gtc aca tct ctg ggc ttc cga Ser Leu Leu Ile Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg 430 435 440	1525
tcc ctg aag gaa att agt gct ggg cgt atc tat ata agt gcc aat agg Ser Leu Lys Glu Ile Ser Ala Gly Arg Ile Tyr Ile Ser Ala Asn Arg 445 450 455 460	1573
cag ctc tgc tac cac cac tct ttg aac tgg acc aag gtg ctt cgg ggg Gln Leu Cys Tyr His His Ser Leu Asn Trp Thr Lys Val Leu Arg Gly 465 470 475	1621
cct acg gaa gag cga cta gac atc aag cat aat cgg ccg cgc aga gac Pro Thr Glu Glu Arg Leu Asp Ile Lys His Asn Arg Pro Arg Arg Asp 480 485 490	1669
tgc gtg gca gag ggc aaa gtg tgt gac cca ctg tgc tcc tct ggg gga Cys Val Ala Glu Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly 495 500 505	1717
tgc tgg ggc cca ggc cct ggt cag tgc ttg tcc tgt cga aat tat agc Cys Trp Gly Pro Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser 510 515 520	1765
cga gga ggt gtc tgt gtg acc cac tgc aac ttt ctg aat ggg gag cct Arg Gly Gly Val Cys Val Thr His Cys Asn Phe Leu Asn Gly Glu Pro 525 530 535 540	1813
cga gaa ttt gcc cat gag gcc gaa tgc ttc tcc tgc cac ccg gaa tgc Arg Glu Phe Ala His Glu Ala Glu Cys Phe Ser Cys His Pro Glu Cys 545 550 555	1861
caa ccc atg gag ggc act gcc aca tgc aat ggc tcg ggc tct gat act Gln Pro Met Glu Gly Thr Ala Thr Cys Asn Gly Ser Gly Ser Asp Thr 560 565 570	1909
tgt gct caa tgt gcc cat ttt cga gat ggg ccc cac tgt gtg agc agc Cys Ala Gln Cys Ala His Phe Arg Asp Gly Pro His Cys Val Ser Ser 575 580 585	1957
tgc ccc cat gga gtc cta ggt gcc aag ggc cca atc tac aag tac cca Cys Pro His Gly Val Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro 590 595 600	2005

gat gtt cag aat gaa tgt cgg ccc tgc cat gag aac tgc acc cag ggg Asp Val Gln Asn Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly 605 610 615 620	2053
tgt aaa gga cca gag ctt caa gac tgt tta gga caa aca ctg gtg ctg Cys Lys Gly Pro Glu Leu Gln Asp Cys Leu Gly Gln Thr Leu Val Leu 625 630 635	2101
atc ggc aaa acc cat ctg aca atg gct ttg aca gtg ata gca gga ttg Ile Gly Lys Thr His Leu Thr Met Ala Leu Thr Val Ile Ala Gly Leu 640 645 650	2149
gta gtg att ttc atg atg ctg ggc ggc act ttt ctc tac tgg cgt ggg Val Val Ile Phe Met Met Leu Gly Gly Thr Phe Leu Tyr Trp Arg Gly 655 660 665	2197
cgc cgg att cag aat aaa agg gct atg agg cga tac ttg gaa cgg ggt Arg Arg Ile Gln Asn Lys Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly 670 675 680	2245
gag agc ata gag cct ctg gac ccc agt gag aag gct aac aaa gtc ttg Glu Ser Ile Glu Pro Leu Asp Pro Ser Glu Lys Ala Asn Lys Val Leu 685 690 695 700	2293
gcc aga atc ttc aaa gag aca gag cta agg aag ctt aaa gtg ctt ggc Ala Arg Ile Phe Lys Glu Thr Glu Leu Arg Lys Leu Lys Val Leu Gly 705 710 715	2341
tcg ggt gtc ttt gga act gtg cac aaa gga gtg tgg atc cct gag ggt Ser Gly Val Phe Gly Thr Val His Lys Gly Val Trp Ile Pro Glu Gly 720 725 730	2389
gaa tca atc aag att cca gtc tgc att aaa gtc att gag gac aag agt Glu Ser Ile Lys Ile Pro Val Cys Ile Lys Val Ile Glu Asp Lys Ser 735 740 745	2437
gga cgg cag agt ttt caa gct gtg aca gat cat atg ctg gcc att ggc Gly Arg Gln Ser Phe Gln Ala Val Thr Asp His Met Leu Ala Ile Gly 750 755 760	2485
agc ctg gac cat gcc cac att gta agg ctg ctg gga cta tgc cca ggg Ser Leu Asp His Ala His Ile Val Arg Leu Leu Gly Leu Cys Pro Gly 765 770 775 780	2533
tca tct ctg cag ctt gtc act caa tat ttg cct ctg ggt tct ctg ctg Ser Ser Leu Gln Leu Val Thr Gln Tyr Leu Pro Leu Gly Ser Leu Leu 785 790 795	2581
gat cat gtg aga caa cac cgg ggg gca ctg ggg cca cag ctg ctg ctc Asp His Val Arg Gln His Arg Gly Ala Leu Gly Pro Gln Leu Leu Leu 800 805 810	2629
aac tgg gga gta caa att gcc aag gga atg tac tac ctt gag gaa cat Asn Trp Gly Val Gln Ile Ala Lys Gly Met Tyr Tyr Leu Glu Glu His 815 820 825	2677
ggg atg gtg cat aga aac ctg gct gcc cga aac gtg cta ctc aag tca Gly Met Val His Arg Asn Leu Ala Ala Arg Asn Val Leu Leu Lys Ser 830 835 840	2725
ccc agt cag gtt cag gtg gca gat ttt ggt gtg gct gac ctg ctg cct Pro Ser Gln Val Gln Val Ala Asp Phe Gly Val Ala Asp Leu Leu Pro 845 850 855 860	2773
cct gat gat aag cag ctg cta tac agt gag gcc aag act cca att aag Pro Asp Asp Lys Gln Leu Leu Tyr Ser Glu Ala Lys Thr Pro Ile Lys 865 870 875	2821

tgg atg gcc ctt gag agt atc cac ttt ggg aaa tac aca cac cag agt Trp Met Ala Leu Glu Ser Ile His Phe Gly Lys Tyr Thr His Gln Ser 880 885 890	2869
gat gtc tgg agc tat ggt gtg aca gtt tgg gag ttg atg acc ttc ggg Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly 895 900 905	2917
gca gag ccc tat gca ggg cta cga ttg gct gaa gta cca gac ctg cta Ala Glu Pro Tyr Ala Gly Leu Arg Leu Ala Glu Val Pro Asp Leu Leu 910 915 920	2965
gag aag ggg gag cgg ttg gca cag ccc cag atc tgc aca att gat gtc Glu Lys Gly Glu Arg Leu Ala Gln Pro Gln Ile Cys Thr Ile Asp Val 925 930 935 940	3013
tac atg gtg atg gtc aag tgt tgg atg att gat gag aac att cgc cca Tyr Met Val Met Val Lys Cys Trp Met Ile Asp Glu Asn Ile Arg Pro 945 950 955	3061
acc ttt aaa gaa cta gcc aat gag ttc acc agg atg gcc cga gac cca Thr Phe Lys Glu Leu Ala Asn Glu Phe Thr Arg Met Ala Arg Asp Pro 960 965 970	3109
cca cgg tat ctg gtc ata aag aga gag agt ggg cct gga ata gcc cct Pro Arg Tyr Leu Val Ile Lys Arg Glu Ser Gly Pro Gly Ile Ala Pro 975 980 985	3157
ggg cca gag ccc cat ggt ctg aca aac aag aag cta gag gaa gta gag Gly Pro Glu Pro His Gly Leu Thr Asn Lys Lys Leu Glu Glu Val Glu 990 995 1000	3205
ctg gag cca gaa cta gac cta gac cta gac ttg gaa gca gag gag Leu Glu Pro Glu Leu Asp Leu Asp Leu Asp Leu Glu Ala Glu Glu 1005 1010 1015	3250
gac aac ctg gca acc acc aca ctg ggc tcc gcc ctc agc cta cca Asp Asn Leu Ala Thr Thr Thr Leu Gly Ser Ala Leu Ser Leu Pro 1020 1025 1030	3295
gtt gga aca ctt aat cgg cca cgt ggg agc cag agc ctt tta agt Val Gly Thr Leu Asn Arg Pro Arg Gly Ser Gln Ser Leu Leu Ser 1035 1040 1045	3340
cca tca tct gga tac atg ccc atg aac cag ggt aat ctt ggg gag Pro Ser Ser Gly Tyr Met Pro Met Asn Gln Gly Asn Leu Gly Glu 1050 1055 1060	3385
tct tgc cag gag tct gca gtt tct ggg agc agt gaa cgg tgc ccc Ser Cys Gln Glu Ser Ala Val Ser Gly Ser Ser Glu Arg Cys Pro 1065 1070 1075	3430
cgt cca gtc tct cta cac cca atg cca cgg gga tgc ctg gca tca Arg Pro Val Ser Leu His Pro Met Pro Arg Gly Cys Leu Ala Ser 1080 1085 1090	3475
gag tca tca gag ggg cat gta aca ggc tct gag gct gag ctc cag Glu Ser Ser Glu Gly His Val Thr Gly Ser Glu Ala Glu Leu Gln 1095 1100 1105	3520
gag aaa gtg tca atg tgt agg agc cgg agc agg agc cgg agc cca Glu Lys Val Ser Met Cys Arg Ser Arg Ser Arg Ser Arg Ser Pro 1110 1115 1120	3565
cgg cca cgc gga gat agc gcc tac cat tcc cag cgc cac agt ctg Arg Pro Arg Gly Asp Ser Ala Tyr His Ser Gln Arg His Ser Leu 1125 1130 1135	3610

ctg act cct gtt acc cca	ctc tcc cca ccc ggg	tta gag gaa gag	3655
Leu Thr Pro Val Thr Pro	Leu Ser Pro Pro Gly	Leu Glu Glu Glu	
1140	1145	1150	
gat gtc aac ggt tat gtc	atg cca gat aca cac	ctc aaa ggt act	3700
Asp Val Asn Gly Tyr Val	Met Pro Asp Thr His	Leu Lys Gly Thr	
1155	1160	1165	
ccc tcc tcc cgg gaa ggc	acc ctt tct tca gtg	ggg ctc agt tct	3745
Pro Ser Ser Arg Glu Gly	Thr Leu Ser Ser Val	Gly Leu Ser Ser	
1170	1175	1180	
gtc ctg ggt act gaa gaa	gaa gat gaa gat gag	gag tat gaa tac	3790
Val Leu Gly Thr Glu Glu	Glu Asp Glu Asp Glu	Glu Tyr Glu Tyr	
1185	1190	1195	
atg aac cgg agg aga agg	cac agt cca cct cat	ccc cct agg cca	3835
Met Asn Arg Arg Arg Arg	His Ser Pro Pro His	Pro Pro Arg Pro	
1200	1205	1210	
agt tcc ctt gag gag ctg	ggg tat gag tac atg	gat gtg ggg tca	3880
Ser Ser Leu Glu Glu Leu	Gly Tyr Glu Tyr Met	Asp Val Gly Ser	
1215	1220	1225	
gac ctc agt gcc tct ctg	ggc agc aca cag agt	tgc cca ctc cac	3925
Asp Leu Ser Ala Ser Leu	Gly Ser Thr Gln Ser	Cys Pro Leu His	
1230	1235	1240	
cct gta ccc atc atg ccc	act gca ggc aca act	cca gat gaa gac	3970
Pro Val Pro Ile Met Pro	Thr Ala Gly Thr Thr	Pro Asp Glu Asp	
1245	1250	1255	
tat gaa tat atg aat cgg	caa cga gat gga ggt	ggg cct ggg ggt	4015
Tyr Glu Tyr Met Asn Arg	Gln Arg Asp Gly Gly	Gly Pro Gly Gly	
1260	1265	1270	
gat tat gca gcc atg ggg	gcc tgc cca gca tct	gag caa ggg tat	4060
Asp Tyr Ala Ala Met Gly	Ala Cys Pro Ala Ser	Glu Gln Gly Tyr	
1275	1280	1285	
gaa gag atg aga gct ttt	cag ggg cct gga cat	cag gcc ccc cat	4105
Glu Glu Met Arg Ala Phe	Gln Gly Pro Gly His	Gln Ala Pro His	
1290	1295	1300	
gtc cat tat gcc cgc cta	aaa act cta cgt agc	tta gag gct aca	4150
Val His Tyr Ala Arg Leu	Lys Thr Leu Arg Ser	Leu Glu Ala Thr	
1305	1310	1315	
gac tct gcc ttt gat aac	cct gat tac tgg cat	agc agg ctt ttc	4195
Asp Ser Ala Phe Asp Asn	Pro Asp Tyr Trp His	Ser Arg Leu Phe	
1320	1325	1330	
ccc aag gct aat gcc cag	aga acg taa ctccgtctcc	ctgtggcact	4242
Pro Lys Ala Asn Ala Gln	Arg Thr		
1335	1340		
cagggagcat ttaatggcag	ctagtgcctt tagagggtac	cgtcttctcc ctattccctc	4302
tctctcccag gtcccagccc	cttttcccca gtcccagaca	attccattca atctttggag	4362
gcttttaaac attttgacac	aaaattctta tggatgtag	ccagctgtgc actttcttct	4422
ctttcccaac cccaggaaag	gttttccctta ttttgtgtgc	tttccagtc ccattcctca	4482
gcttcttcac aggcactcct	ggagatatga aggattactc	tccatatccc ttcctctcag	4542
gctcttgact acttggaact	aggctcttat gtgtgccttt	gttcccatc agactgtcaa	4602

gaagaggaaa gggaggaaac ctagcagagg aaagtgtaat ttgggtttat gactcttaac 4662
 cccctagaaa gacagaagct taaaatctgt gaagaaagag gtaggagta gatattgatt 4722
 actatcataa ttcagcactt aactatgagc caggcatcat actaaacttc acctacatta 4782
 tctcacttag tcctttatca tccttaaaac aattctgtga catacatatt atctcatttt 4842
 acacaaaggg aagtcgggca tgggtggctca tgcctgtaat ctcagcactt tgggaggctg 4902
 aggcagaagg attacctgag gcaaggagtt tgagaccagc ttagccaaca tagtaagacc 4962
 cccatctctt taaaaaaaaa aaaaaaaaaa aaaaaaaaaac tttagaactg ggtgcagtgg 5022
 ctcatgcctg taatcccagc cagcactttg ggaggctgag atgggaagat cacttgagcc 5082
 cagaattaga gataagccta tggaaacata gcaagacact gtctctacag gggaaaaaaaa 5142
 aaaaagaaac tgagccttaa agagatgaaa taaattaagc agtagatcca ggatgcaaaa 5202
 tcctcccaat tcctgtgcat gtgctcttat tgtaagggtgc caagaaaaac tgatttaagt 5262
 tacagccctt gttaagggg cactgtttct tgtttttgca ctgaatcaag tctaacccca 5322
 acagccacat cctcctatac ctagacatct catctcagga agtgggtggg ggggtagtca 5382
 gaaggaaaaa taactggaca tctttgtgta aaccataatc cacatgtgcc gtaaagatgc 5442
 ttcactcctt atccgagggc aaattcaciaa ggatcccaaa gatccacttt tagaagccat 5502
 tctcatcca 5511

<210> 15
 <211> 1342
 <212> PRT
 <213> Homo sapiens

<400> 15

Met Arg Ala Asn Asp Ala Leu Gln Val Leu Gly Leu Leu Phe Ser Leu
 1 5 10 15

Ala Arg Gly Ser Glu Val Gly Asn Ser Gln Ala Val Cys Pro Gly Thr
 20 25 30

Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Glu Asn Gln Tyr Gln Thr
 35 40 45

Leu Tyr Lys Leu Tyr Glu Arg Cys Glu Val Val Met Gly Asn Leu Glu
 50 55 60

Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile
 65 70 75 80

Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Thr
 85 90 95

Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr Gln Val Tyr Asp
 100 105 110

Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser
 115 120 125
 His Ala Leu Arg Gln Leu Arg Leu Thr Gln Leu Thr Glu Ile Leu Ser
 130 135 140
 Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr
 145 150 155 160
 Ile Asp Trp Arg Asp Ile Val Arg Asp Arg Asp Ala Glu Ile Val Val
 165 170 175
 Lys Asp Asn Gly Arg Ser Cys Pro Pro Cys His Glu Val Cys Lys Gly
 180 185 190
 Arg Cys Trp Gly Pro Gly Ser Glu Asp Cys Gln Thr Leu Thr Lys Thr
 195 200 205
 Ile Cys Ala Pro Gln Cys Asn Gly His Cys Phe Gly Pro Asn Pro Asn
 210 215 220
 Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp
 225 230 235 240
 Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val
 245 250 255
 Pro Arg Cys Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu
 260 265 270
 Glu Pro Asn Pro His Thr Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala
 275 280 285
 Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Ser Cys Val Arg Ala
 290 295 300
 Cys Pro Pro Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys
 305 310 315 320
 Glu Pro Cys Gly Gly Leu Cys Pro Lys Ala Cys Glu Gly Thr Gly Ser
 325 330 335
 Gly Ser Arg Phe Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val
 340 345 350
 Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu
 355 360 365
 Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu
 370 375 380

Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln
 385 390 395 400
 Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr
 405 410 415
 Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile
 420 425 430
 Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu
 435 440 445
 Ile Ser Ala Gly Arg Ile Tyr Ile Ser Ala Asn Arg Gln Leu Cys Tyr
 450 455 460
 His His Ser Leu Asn Trp Thr Lys Val Leu Arg Gly Pro Thr Glu Glu
 465 470 475 480
 Arg Leu Asp Ile Lys His Asn Arg Pro Arg Arg Asp Cys Val Ala Glu
 485 490 495
 Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro
 500 505 510
 Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Gly Gly Val
 515 520 525
 Cys Val Thr His Cys Asn Phe Leu Asn Gly Glu Pro Arg Glu Phe Ala
 530 535 540
 His Glu Ala Glu Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu
 545 550 555 560
 Gly Thr Ala Thr Cys Asn Gly Ser Gly Ser Asp Thr Cys Ala Gln Cys
 565 570 575
 Ala His Phe Arg Asp Gly Pro His Cys Val Ser Ser Cys Pro His Gly
 580 585 590
 Val Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Val Gln Asn
 595 600 605
 Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro
 610 615 620
 Glu Leu Gln Asp Cys Leu Gly Gln Thr Leu Val Leu Ile Gly Lys Thr
 625 630 635 640
 His Leu Thr Met Ala Leu Thr Val Ile Ala Gly Leu Val Val Ile Phe
 645 650 655

Met Met Leu Gly Gly Thr Phe Leu Tyr Trp Arg Gly Arg Arg Ile Gln
660 665 670

Asn Lys Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu
675 680 685

Pro Leu Asp Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe
690 695 700

Lys Glu Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe
705 710 715 720

Gly Thr Val His Lys Gly Val Trp Ile Pro Glu Gly Glu Ser Ile Lys
725 730 735

Ile Pro Val Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser
740 745 750

Phe Gln Ala Val Thr Asp His Met Leu Ala Ile Gly Ser Leu Asp His
755 760 765

Ala His Ile Val Arg Leu Leu Gly Leu Cys Pro Gly Ser Ser Leu Gln
770 775 780

Leu Val Thr Gln Tyr Leu Pro Leu Gly Ser Leu Leu Asp His Val Arg
785 790 795 800

Gln His Arg Gly Ala Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val
805 810 815

Gln Ile Ala Lys Gly Met Tyr Tyr Leu Glu Glu His Gly Met Val His
820 825 830

Arg Asn Leu Ala Ala Arg Asn Val Leu Leu Lys Ser Pro Ser Gln Val
835 840 845

Gln Val Ala Asp Phe Gly Val Ala Asp Leu Leu Pro Pro Asp Asp Lys
850 855 860

Gln Leu Leu Tyr Ser Glu Ala Lys Thr Pro Ile Lys Trp Met Ala Leu
865 870 875 880

Glu Ser Ile His Phe Gly Lys Tyr Thr His Gln Ser Asp Val Trp Ser
885 890 895

Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Glu Pro Tyr
900 905 910

Ala Gly Leu Arg Leu Ala Glu Val Pro Asp Leu Leu Glu Lys Gly Glu
915 920 925

Arg Leu Ala Gln Pro Gln Ile Cys Thr Ile Asp Val Tyr Met Val Met
 930 935 940
 Val Lys Cys Trp Met Ile Asp Glu Asn Ile Arg Pro Thr Phe Lys Glu
 945 950 955 960
 Leu Ala Asn Glu Phe Thr Arg Met Ala Arg Asp Pro Pro Arg Tyr Leu
 965 970 975
 Val Ile Lys Arg Glu Ser Gly Pro Gly Ile Ala Pro Gly Pro Glu Pro
 980 985 990
 His Gly Leu Thr Asn Lys Lys Leu Glu Glu Val Glu Leu Glu Pro Glu
 995 1000 1005
 Leu Asp Leu Asp Leu Asp Leu Glu Ala Glu Glu Asp Asn Leu Ala
 1010 1015 1020
 Thr Thr Thr Leu Gly Ser Ala Leu Ser Leu Pro Val Gly Thr Leu
 1025 1030 1035
 Asn Arg Pro Arg Gly Ser Gln Ser Leu Leu Ser Pro Ser Ser Gly
 1040 1045 1050
 Tyr Met Pro Met Asn Gln Gly Asn Leu Gly Glu Ser Cys Gln Glu
 1055 1060 1065
 Ser Ala Val Ser Gly Ser Ser Glu Arg Cys Pro Arg Pro Val Ser
 1070 1075 1080
 Leu His Pro Met Pro Arg Gly Cys Leu Ala Ser Glu Ser Ser Glu
 1085 1090 1095
 Gly His Val Thr Gly Ser Glu Ala Glu Leu Gln Glu Lys Val Ser
 1100 1105 1110
 Met Cys Arg Ser Arg Ser Arg Ser Arg Ser Pro Arg Pro Arg Gly
 1115 1120 1125
 Asp Ser Ala Tyr His Ser Gln Arg His Ser Leu Leu Thr Pro Val
 1130 1135 1140
 Thr Pro Leu Ser Pro Pro Gly Leu Glu Glu Glu Asp Val Asn Gly
 1145 1150 1155
 Tyr Val Met Pro Asp Thr His Leu Lys Gly Thr Pro Ser Ser Arg
 1160 1165 1170
 Glu Gly Thr Leu Ser Ser Val Gly Leu Ser Ser Val Leu Gly Thr
 1175 1180 1185

Glu Glu Glu Asp Glu Asp Glu Glu Tyr Glu Tyr Met Asn Arg Arg
1190 1195 1200

Arg Arg His Ser Pro Pro His Pro Pro Arg Pro Ser Ser Leu Glu
1205 1210 1215

Glu Leu Gly Tyr Glu Tyr Met Asp Val Gly Ser Asp Leu Ser Ala
1220 1225 1230

Ser Leu Gly Ser Thr Gln Ser Cys Pro Leu His Pro Val Pro Ile
1235 1240 1245

Met Pro Thr Ala Gly Thr Thr Pro Asp Glu Asp Tyr Glu Tyr Met
1250 1255 1260

Asn Arg Gln Arg Asp Gly Gly Gly Pro Gly Gly Asp Tyr Ala Ala
1265 1270 1275

Met Gly Ala Cys Pro Ala Ser Glu Gln Gly Tyr Glu Glu Met Arg
1280 1285 1290

Ala Phe Gln Gly Pro Gly His Gln Ala Pro His Val His Tyr Ala
1295 1300 1305

Arg Leu Lys Thr Leu Arg Ser Leu Glu Ala Thr Asp Ser Ala Phe
1310 1315 1320

Asp Asn Pro Asp Tyr Trp His Ser Arg Leu Phe Pro Lys Ala Asn
1325 1330 1335

Ala Gln Arg Thr
1340

<210> 16
<211> 4020
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)..(4020)

<400> 16
atg agt gcg att ggg act ctg cag gtg ctg ggt ttc ctt ctc agc ctg 48
Met Ser Ala Ile Gly Thr Leu Gln Val Leu Gly Phe Leu Leu Ser Leu
1 5 10 15
gcc cgg ggt tcc gag atg ggc aac tct cag gca gta tgt cct ggg act 96
Ala Arg Gly Ser Glu Met Gly Asn Ser Gln Ala Val Cys Pro Gly Thr
20 25 30
cta aac ggg ctg agt gtg acc ggc gat gct gac aac cag tac cag aca 144
Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Asp Asn Gln Tyr Gln Thr
35 40 45

ctg tac aaa ctc tat gag aag tgt gag gtg gtc atg ggt aac ctg gag 192
 Leu Tyr Lys Leu Tyr Glu Lys Cys Glu Val Val Met Gly Asn Leu Glu
 50 55 60

att gtg ctt acg gga cac aat gct gat ctt tcc ttc ctg caa tgg atc 240
 Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile
 65 70 75 80

cga gaa gtg aca ggc tat gta ctg gtg gcc atg aat gaa ttc tct gta 288
 Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Val
 85 90 95

ctg ccc tta cct aac ctc cga gtg gtc cgg gga acc cag gtc tac gat 336
 Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr Gln Val Tyr Asp
 100 105 110

ggg aag ttt gcc atc ttt gtc atg ttg aac tac aat acc aac tcc agc 384
 Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser
 115 120 125

cat gct ctg cgc cag ctc cgg ttc act cag ctt act gag att ctg tta 432
 His Ala Leu Arg Gln Leu Arg Phe Thr Gln Leu Thr Glu Ile Leu Leu
 130 135 140

ggg ggc gtt tac att gag aag aat gac aaa ctt tgc cac atg gat aca 480
 Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr
 145 150 155 160

att gac tgg agg gac atc gtg agg gtt cca gac gct gag ata gtg gtg 528
 Ile Asp Trp Arg Asp Ile Val Arg Val Pro Asp Ala Glu Ile Val Val
 165 170 175

aag aac aac ggg ggg aac tgt cca ccc tgt cac gaa gtc tgc aag ggg 576
 Lys Asn Asn Gly Gly Asn Cys Pro Pro Cys His Glu Val Cys Lys Gly
 180 185 190

cga tgc tgg ggg cct gga cca gaa gac tgc cag ata ttg acc aag acc 624
 Arg Cys Trp Gly Pro Gly Pro Glu Asp Cys Gln Ile Leu Thr Lys Thr
 195 200 205

atc tgt gcc cct cag tgt aac ggt cgc tgc ttc ggg ccc aat cct aac 672
 Ile Cys Ala Pro Gln Cys Asn Gly Arg Cys Phe Gly Pro Asn Pro Asn
 210 215 220

cag tgc tgc cac gat gaa tgt gca ggt ggc tgc tct gga ccc cag gac 720
 Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp
 225 230 235 240

aca gat tgc ttc gcc tgc cga cac ttc aat gac agt ggt gcc tgt gtg 768
 Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val
 245 250 255

ccc agg tgt cca gcg ccc ctt gtg tac aac aag cta acg ttc cag ctt 816
 Pro Arg Cys Pro Ala Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu
 260 265 270

gag ccc aac ccc cat atc aag tat cag tac gga gga gtc tgt gtt gcc 864
 Glu Pro Asn Pro His Ile Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala
 275 280 285

agt tgt ccc cat aac ttt gtg gtg gat cag aca ttt tgt gtc agg gct 912
 Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Phe Cys Val Arg Ala
 290 295 300

tgt cct gct gac aag atg gaa gta gat aag aat gga ctc aag atg tgt 960
 Cys Pro Ala Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys
 305 310 315 320

gag cct tgc aga ggg ctg tgc cca aaa gcc tgt gag ggg acg ggc tct Glu Pro Cys Arg Gly Leu Cys Pro Lys Ala Cys Glu Gly Thr Gly Ser 325 330 335	1008
gga agc cgc tac cag acc gtg gac tct agc aat atc gat ggg ttc gtg Gly Ser Arg Tyr Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val 340 345 350	1056
aac tgt acc aag atc ctg ggc aac ctg gac ttc ctc atc act ggc ctc Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu 355 360 365	1104
aat ggt gac ccc tgg cac aag atc cct gca ctg gac ccg gaa aag ctc Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu 370 375 380	1152
aat gtt ttc agg aca gtc cgg gag att aca ggc tac cta aac atc cag Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln 385 390 395 400	1200
tcc tgg ccc cct cac atg cac aac ttc agt gtt ttt tcc aac ctg acg Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr 405 410 415	1248
acc atc ggg ggc aga agc ctc tac aat cgg ggc ttc tcc ttg ttg atc Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile 420 425 430	1296
atg aag aac ttg aat gtc acg tct ctg ggc ttc cgg tcc ctg aag gaa Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu 435 440 445	1344
att agt gct ggg cgt gtc tac ata agt gcc aat cag caa ctt tgt tac Ile Ser Ala Gly Arg Val Tyr Ile Ser Ala Asn Gln Gln Leu Cys Tyr 450 455 460	1392
cac cac tct ctg aac tgg acc aga ctt ctg cgg ggg ccc gca gag gag His His Ser Leu Asn Trp Thr Arg Leu Leu Arg Gly Pro Ala Glu Glu 465 470 475 480	1440
aga ctt gac atc aag tac aac cgg cct ctg gga gaa tgc gtg gca gag Arg Leu Asp Ile Lys Tyr Asn Arg Pro Leu Gly Glu Cys Val Ala Glu 485 490 495	1488
ggc aaa gtg tgt gat cca ctg tgc tcc tct ggg gga tgc tgg ggc cca Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro 500 505 510	1536
ggc cct ggt cag tgc ttg tct tgt cga aac tac agc cgg gaa ggt gtc Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Glu Gly Val 515 520 525	1584
tgt gtg act cac tgc aac gtt ctg caa ggg gaa ccc cga gag ttt gtt Cys Val Thr His Cys Asn Val Leu Gln Gly Glu Pro Arg Glu Phe Val 530 535 540	1632
cat gag gct cat tgc ttc tcc tgc cat cca gaa tgc cag ccc atg gag His Glu Ala His Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu 545 550 555 560	1680
ggc acc agc acg tgc aat ggc tgc ggc tcc gac gct tgt gct cga tgc Gly Thr Ser Thr Cys Asn Gly Ser Gly Ser Asp Ala Cys Ala Arg Cys 565 570 575	1728
gcc cat ttt cgt gat ggg ccc cac tgt gtg aac agc tgc ccc cat gga Ala His Phe Arg Asp Gly Pro His Cys Val Asn Ser Cys Pro His Gly 580 585 590	1776

atc cta ggt gcc aaa ggt cca atc tac aaa tat cca gat gct cag aat 1824
 Ile Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Ala Gln Asn
 595 600 605

gag tgc cgg ccc tgc cac gag aac tgc acc caa ggg tgt aag gga cca 1872
 Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro
 610 615 620

gaa cta caa gac tgt tta ggc caa gca gag gta tta atg agc aaa cca 1920
 Glu Leu Gln Asp Cys Leu Gly Gln Ala Glu Val Leu Met Ser Lys Pro
 625 630 635 640

cac ctg gtc ata gcg gtg aca gta gga ctg act gtg atc ttc ctg att 1968
 His Leu Val Ile Ala Val Thr Val Gly Leu Thr Val Ile Phe Leu Ile
 645 650 655

ctg gga ggc tct ttt ctc tat tgg cgt gga cgc agg att cag aat aaa 2016
 Leu Gly Gly Ser Phe Leu Tyr Trp Arg Gly Arg Arg Ile Gln Asn Lys
 660 665 670

agg gct atg aga cgc tac ttg gag cgg ggt gag agc atc gag cct ctg 2064
 Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu Pro Leu
 675 680 685

gac cca agc gag aag gca aac aaa gtc ttg gct aga atc ttc aaa gag 2112
 Asp Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe Lys Glu
 690 695 700

aca gag ctg agg aaa ctt aag gtg ctt ggc tct ggt gtc ttt gga act 2160
 Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe Gly Thr
 705 710 715 720

gta cac aag ggg att tgg att ccc gag ggt gaa tcc atc aag att cca 2208
 Val His Lys Gly Ile Trp Ile Pro Glu Gly Glu Ser Ile Lys Ile Pro
 725 730 735

gtc tgc att aaa gtc atc gag gac aag agt ggg cgg cag agt ttt cag 2256
 Val Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser Phe Gln
 740 745 750

gct gtg act gat cac atg ctg gcc gtc ggc agc ctg gac cat gcc cac 2304
 Ala Val Thr Asp His Met Leu Ala Val Gly Ser Leu Asp His Ala His
 755 760 765

att gta cgg ctg ctg gga ctg tgc cca ggg tca tct ctg cag ctt gtc 2352
 Ile Val Arg Leu Leu Gly Leu Cys Pro Gly Ser Ser Leu Gln Leu Val
 770 775 780

act cag tac ttg cct ctg ggc tct ctc ctt gat cat gta aga cag cac 2400
 Thr Gln Tyr Leu Pro Leu Gly Ser Leu Leu Asp His Val Arg Gln His
 785 790 795 800

cgt gag aca ctg gga cca cag ctg ctg ctc aac tgg gga gta caa att 2448
 Arg Glu Thr Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val Gln Ile
 805 810 815

gcc aag ggt atg tat tac ctc gag gaa cac agc atg gtg cat agg gac 2496
 Ala Lys Gly Met Tyr Tyr Leu Glu Glu His Ser Met Val His Arg Asp
 820 825 830

ctt gcg ctc cgg aat gtg atg ctt aag tca ccg agt caa gtc cag gtg 2544
 Leu Ala Leu Arg Asn Val Met Leu Lys Ser Pro Ser Gln Val Gln Val
 835 840 845

gca gat ttt ggt gtg gct gac ttg ctg ccg cca gat gac aag cag tta 2592
 Ala Asp Phe Gly Val Ala Asp Leu Leu Pro Pro Asp Asp Lys Gln Leu
 850 855 860

cta cac agt gag gcc aag act cca att aaa tgg atg gcc ctt gag agt Leu His Ser Glu Ala Lys Thr Pro Ile Lys Trp Met Ala Leu Glu Ser 865 870 875 880	2640
atc cac ttt ggg aaa tac aca cac cag agt gat gtc tgg agt tac ggt Ile His Phe Gly Lys Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly 885 890 895	2688
gta acc gtt tgg gag ttg atg acc ttc ggg gca gag ccc tac gca ggg Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Glu Pro Tyr Ala Gly 900 905 910	2736
cta cga ctg gct gaa ata cca gac ctg ctg gag aag gga gag cgg tta Leu Arg Leu Ala Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu 915 920 925	2784
gca cag ccc cag atc tgc acc att gac gtc tac atg gtc atg gtc aag Ala Gln Pro Gln Ile Cys Thr Ile Asp Val Tyr Met Val Met Val Lys 930 935 940	2832
tgt tgg atg att gac gag aat att cgc cca acc ttt aaa gaa ctg gcc Cys Trp Met Ile Asp Glu Asn Ile Arg Pro Thr Phe Lys Glu Leu Ala 945 950 955 960	2880
aat gag ttt acc agg atg gcc cgg gac cca cca agg tat ctg gtc atc Asn Glu Phe Thr Arg Met Ala Arg Asp Pro Pro Arg Tyr Leu Val Ile 965 970 975	2928
aag aga gcg agt ggg cct gga ata cct cct gca gca gag cca tct gct Lys Arg Ala Ser Gly Pro Gly Ile Pro Pro Ala Ala Glu Pro Ser Ala 980 985 990	2976
ctg agc acc aaa gag ttg cag gat gca gag ctg gag cca gac ctg gac Leu Ser Thr Lys Glu Leu Gln Asp Ala Glu Leu Glu Pro Asp Leu Asp 995 1000 1005	3024
ctc gac cta gac gtg gag gta gaa gag gag ggc ctg gcg acc aca Leu Asp Leu Asp Val Glu Val Glu Glu Glu Gly Leu Ala Thr Thr 1010 1015 1020	3069
ctg ggt tct gcc ctc agc ttg cct aca gga acg ctt acc cgg cca Leu Gly Ser Ala Leu Ser Leu Pro Thr Gly Thr Leu Thr Arg Pro 1025 1030 1035	3114
cgt ggg agc cag agt ctt tta agt cct tcg tct gga tac atg ccc Arg Gly Ser Gln Ser Leu Leu Ser Pro Ser Ser Gly Tyr Met Pro 1040 1045 1050	3159
atg aac cag agc aac ctt ggg gag gct tgt ctg gat tct gcg gtt Met Asn Gln Ser Asn Leu Gly Glu Ala Cys Leu Asp Ser Ala Val 1055 1060 1065	3204
ttg ggg ggt cgc gaa cag ttc tcc cgt ccc atc tct ctg cac ccg Leu Gly Gly Arg Glu Gln Phe Ser Arg Pro Ile Ser Leu His Pro 1070 1075 1080	3249
atc cca cgg ggg cgt caa acg tca gag tca tca gag ggc cat gtg Ile Pro Arg Gly Arg Gln Thr Ser Glu Ser Ser Glu Gly His Val 1085 1090 1095	3294
acg ggc tct gag gct gaa ctc caa gag aga gta tca atg tgt agg Thr Gly Ser Glu Ala Glu Leu Gln Glu Arg Val Ser Met Cys Arg 1100 1105 1110	3339
agc cgg agc cgg agc cgg agc cca cgg cca cgt ggg gac agt gcc Ser Arg Ser Arg Ser Arg Ser Pro Arg Pro Arg Gly Asp Ser Ala 1115 1120 1125	3384

tac cat tcg cag cga cac agc	ctg ctt act ccc gtc	acc ccg ctc	3429
Tyr His Ser Gln Arg His Ser	Leu Leu Thr Pro Val	Thr Pro Leu	
1130	1135	1140	
tcc cca cca ggg tta gag gaa	gag gat ggc aat ggt	tat gtc atg	3474
Ser Pro Pro Gly Leu Glu Glu	Glu Asp Gly Asn Gly	Tyr Val Met	
1145	1150	1155	
cca gat acg cac ctc aga ggt	aca tcc tct tcc cgg	gaa ggc acc	3519
Pro Asp Thr His Leu Arg Gly	Thr Ser Ser Ser Arg	Glu Gly Thr	
1160	1165	1170	
ctt tcg tca gta ggt ctc agt	tct gtg ctg ggt acc	gaa gag gaa	3564
Leu Ser Ser Val Gly Leu Ser	Ser Val Leu Gly Thr	Glu Glu Glu	
1175	1180	1185	
gat gaa gat gag gag tat gaa	tac atg aac cgg aag	agg agg ggt	3609
Asp Glu Asp Glu Glu Tyr Glu	Tyr Met Asn Arg Lys	Arg Arg Gly	
1190	1195	1200	
agc ccg gct cgg ccc ccc aga	cct ggt tcc ctg gaa	gag ctg ggc	3654
Ser Pro Ala Arg Pro Pro Arg	Pro Gly Ser Leu Glu	Glu Leu Gly	
1205	1210	1215	
tat gag tac atg gat gtg ggt	tca gac ctc agt gct	tct ctg ggc	3699
Tyr Glu Tyr Met Asp Val Gly	Ser Asp Leu Ser Ala	Ser Leu Gly	
1220	1225	1230	
agt acg cag agt tgc cca ctc	cat ccc atg gcc atc	gtg ccc tct	3744
Ser Thr Gln Ser Cys Pro Leu	His Pro Met Ala Ile	Val Pro Ser	
1235	1240	1245	
gct ggc acg act cca gat gag	gac tat gaa tac atg	aac cgc agg	3789
Ala Gly Thr Thr Pro Asp Glu	Asp Tyr Glu Tyr Met	Asn Arg Arg	
1250	1255	1260	
cgt ggt gcg ggc ggt tcc gga	ggg gat tat gca gct	atg ggg gcc	3834
Arg Gly Ala Gly Gly Ser Gly	Gly Asp Tyr Ala Ala	Met Gly Ala	
1265	1270	1275	
tgc cca gca gct gaa caa ggg	tat gag gaa atg cga	gct ttc cag	3879
Cys Pro Ala Ala Glu Gln Gly	Tyr Glu Glu Met Arg	Ala Phe Gln	
1280	1285	1290	
ggg cct gga cat caa gcc ccc	cat gtt cgt tat gcc	cgc ctc aaa	3924
Gly Pro Gly His Gln Ala Pro	His Val Arg Tyr Ala	Arg Leu Lys	
1295	1300	1305	
act ctg cgt agt tta gaa gcc	act gac tcc gcc ttt	gac aac ccc	3969
Thr Leu Arg Ser Leu Glu Ala	Thr Asp Ser Ala Phe	Asp Asn Pro	
1310	1315	1320	
gat tac tgg cat agc agg ctt	ttc cct aag gct aac	gcc cag aga	4014
Asp Tyr Trp His Ser Arg Leu	Phe Pro Lys Ala Asn	Ala Gln Arg	
1325	1330	1335	
att tga			4020
Ile			

<210> 17
 <211> 1339
 <212> PRT
 <213> Mus musculus
 <400> 17

Met Ser Ala Ile Gly Thr Leu Gln Val Leu Gly Phe Leu Leu Ser Leu
 1 5 10 15
 Ala Arg Gly Ser Glu Met Gly Asn Ser Gln Ala Val Cys Pro Gly Thr
 20 25 30
 Leu Asn Gly Leu Ser Val Thr Gly Asp Ala Asp Asn Gln Tyr Gln Thr
 35 40 45
 Leu Tyr Lys Leu Tyr Glu Lys Cys Glu Val Val Met Gly Asn Leu Glu
 50 55 60
 Ile Val Leu Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile
 65 70 75 80
 Arg Glu Val Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Val
 85 90 95
 Leu Pro Leu Pro Asn Leu Arg Val Val Arg Gly Thr Gln Val Tyr Asp
 100 105 110
 Gly Lys Phe Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser
 115 120 125
 His Ala Leu Arg Gln Leu Arg Phe Thr Gln Leu Thr Glu Ile Leu Leu
 130 135 140
 Gly Gly Val Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr
 145 150 155 160
 Ile Asp Trp Arg Asp Ile Val Arg Val Pro Asp Ala Glu Ile Val Val
 165 170 175
 Lys Asn Asn Gly Gly Asn Cys Pro Pro Cys His Glu Val Cys Lys Gly
 180 185 190
 Arg Cys Trp Gly Pro Gly Pro Glu Asp Cys Gln Ile Leu Thr Lys Thr
 195 200 205
 Ile Cys Ala Pro Gln Cys Asn Gly Arg Cys Phe Gly Pro Asn Pro Asn
 210 215 220
 Gln Cys Cys His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp
 225 230 235 240
 Thr Asp Cys Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val
 245 250 255
 Pro Arg Cys Pro Ala Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu
 260 265 270

Glu Pro Asn Pro His Ile Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala
 275 280 285

Ser Cys Pro His Asn Phe Val Val Asp Gln Thr Phe Cys Val Arg Ala
 290 295 300

Cys Pro Ala Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys
 305 310 315 320

Glu Pro Cys Arg Gly Leu Cys Pro Lys Ala Cys Glu Gly Thr Gly Ser
 325 330 335

Gly Ser Arg Tyr Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val
 340 345 350

Asn Cys Thr Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu
 355 360 365

Asn Gly Asp Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu
 370 375 380

Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln
 385 390 395 400

Ser Trp Pro Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr
 405 410 415

Thr Ile Gly Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile
 420 425 430

Met Lys Asn Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu
 435 440 445

Ile Ser Ala Gly Arg Val Tyr Ile Ser Ala Asn Gln Gln Leu Cys Tyr
 450 455 460

His His Ser Leu Asn Trp Thr Arg Leu Leu Arg Gly Pro Ala Glu Glu
 465 470 475 480

Arg Leu Asp Ile Lys Tyr Asn Arg Pro Leu Gly Glu Cys Val Ala Glu
 485 490 495

Gly Lys Val Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro
 500 505 510

Gly Pro Gly Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Glu Gly Val
 515 520 525

Cys Val Thr His Cys Asn Val Leu Gln Gly Glu Pro Arg Glu Phe Val
 530 535 540

His Glu Ala His Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu
545 550 555 560

Gly Thr Ser Thr Cys Asn Gly Ser Gly Ser Asp Ala Cys Ala Arg Cys
565 570 575

Ala His Phe Arg Asp Gly Pro His Cys Val Asn Ser Cys Pro His Gly
580 585 590

Ile Leu Gly Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Ala Gln Asn
595 600 605

Glu Cys Arg Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro
610 615 620

Glu Leu Gln Asp Cys Leu Gly Gln Ala Glu Val Leu Met Ser Lys Pro
625 630 635 640

His Leu Val Ile Ala Val Thr Val Gly Leu Thr Val Ile Phe Leu Ile
645 650 655

Leu Gly Gly Ser Phe Leu Tyr Trp Arg Gly Arg Arg Ile Gln Asn Lys
660 665 670

Arg Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu Pro Leu
675 680 685

Asp Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe Lys Glu
690 695 700

Thr Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe Gly Thr
705 710 715 720

Val His Lys Gly Ile Trp Ile Pro Glu Gly Glu Ser Ile Lys Ile Pro
725 730 735

Val Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser Phe Gln
740 745 750

Ala Val Thr Asp His Met Leu Ala Val Gly Ser Leu Asp His Ala His
755 760 765

Ile Val Arg Leu Leu Gly Leu Cys Pro Gly Ser Ser Leu Gln Leu Val
770 775 780

Thr Gln Tyr Leu Pro Leu Gly Ser Leu Leu Asp His Val Arg Gln His
785 790 795 800

Arg Glu Thr Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val Gln Ile
805 810 815

Ala Lys Gly Met Tyr Tyr Leu Glu Glu His Ser Met Val His Arg Asp
820 825 830

Leu Ala Leu Arg Asn Val Met Leu Lys Ser Pro Ser Gln Val Gln Val
835 840 845

Ala Asp Phe Gly Val Ala Asp Leu Leu Pro Pro Asp Asp Lys Gln Leu
850 855 860

Leu His Ser Glu Ala Lys Thr Pro Ile Lys Trp Met Ala Leu Glu Ser
865 870 875 880

Ile His Phe Gly Lys Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly
885 890 895

Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Glu Pro Tyr Ala Gly
900 905 910

Leu Arg Leu Ala Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu
915 920 925

Ala Gln Pro Gln Ile Cys Thr Ile Asp Val Tyr Met Val Met Val Lys
930 935 940

Cys Trp Met Ile Asp Glu Asn Ile Arg Pro Thr Phe Lys Glu Leu Ala
945 950 955 960

Asn Glu Phe Thr Arg Met Ala Arg Asp Pro Pro Arg Tyr Leu Val Ile
965 970 975

Lys Arg Ala Ser Gly Pro Gly Ile Pro Pro Ala Ala Glu Pro Ser Ala
980 985 990

Leu Ser Thr Lys Glu Leu Gln Asp Ala Glu Leu Glu Pro Asp Leu Asp
995 1000 1005

Leu Asp Leu Asp Val Glu Val Glu Glu Glu Gly Leu Ala Thr Thr
1010 1015 1020

Leu Gly Ser Ala Leu Ser Leu Pro Thr Gly Thr Leu Thr Arg Pro
1025 1030 1035

Arg Gly Ser Gln Ser Leu Leu Ser Pro Ser Ser Gly Tyr Met Pro
1040 1045 1050

Met Asn Gln Ser Asn Leu Gly Glu Ala Cys Leu Asp Ser Ala Val
1055 1060 1065

Leu Gly Gly Arg Glu Gln Phe Ser Arg Pro Ile Ser Leu His Pro
1070 1075 1080

Ile Pro Arg Gly Arg Gln Thr Ser Glu Ser Ser Glu Gly His Val
 1085 1090 1095
 Thr Gly Ser Glu Ala Glu Leu Gln Glu Arg Val Ser Met Cys Arg
 1100 1105 1110
 Ser Arg Ser Arg Ser Arg Ser Pro Arg Pro Arg Gly Asp Ser Ala
 1115 1120 1125
 Tyr His Ser Gln Arg His Ser Leu Leu Thr Pro Val Thr Pro Leu
 1130 1135 1140
 Ser Pro Pro Gly Leu Glu Glu Glu Asp Gly Asn Gly Tyr Val Met
 1145 1150 1155
 Pro Asp Thr His Leu Arg Gly Thr Ser Ser Ser Arg Glu Gly Thr
 1160 1165 1170
 Leu Ser Ser Val Gly Leu Ser Ser Val Leu Gly Thr Glu Glu Glu
 1175 1180 1185
 Asp Glu Asp Glu Glu Tyr Glu Tyr Met Asn Arg Lys Arg Arg Gly
 1190 1195 1200
 Ser Pro Ala Arg Pro Pro Arg Pro Gly Ser Leu Glu Glu Leu Gly
 1205 1210 1215
 Tyr Glu Tyr Met Asp Val Gly Ser Asp Leu Ser Ala Ser Leu Gly
 1220 1225 1230
 Ser Thr Gln Ser Cys Pro Leu His Pro Met Ala Ile Val Pro Ser
 1235 1240 1245
 Ala Gly Thr Thr Pro Asp Glu Asp Tyr Glu Tyr Met Asn Arg Arg
 1250 1255 1260
 Arg Gly Ala Gly Gly Ser Gly Gly Asp Tyr Ala Ala Met Gly Ala
 1265 1270 1275
 Cys Pro Ala Ala Glu Gln Gly Tyr Glu Glu Met Arg Ala Phe Gln
 1280 1285 1290
 Gly Pro Gly His Gln Ala Pro His Val Arg Tyr Ala Arg Leu Lys
 1295 1300 1305
 Thr Leu Arg Ser Leu Glu Ala Thr Asp Ser Ala Phe Asp Asn Pro
 1310 1315 1320
 Asp Tyr Trp His Ser Arg Leu Phe Pro Lys Ala Asn Ala Gln Arg
 1325 1330 1335

ile

```
<210> 18
<211> 5484
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> CDS
<222> (34) .. (3960)
```

[illegible]

ccc aca gaa aat cat tgc cag act ttg aca agg acg gtg tgt gca gaa 678
 Pro Thr Glu Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu
 200 205 210 215

caa tgt gac ggc aga tgc tac gga cct tac gtc agt gac tgc tgc cat 726
 Gln Cys Asp Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His
 220 225 230

cga gaa tgt gct gga ggc tgc tca gga cct aag gac aca gac tgc ttt 774
 Arg Glu Cys Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe
 235 240 245

gcc tgc atg aat ttc aat gac agt gga gca tgt gtt act cag tgt ccc 822
 Ala Cys Met Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro
 250 255 260

caa acc ttt gtc tac aat cca acc acc ttt caa ctg gag cac aat ttc 870
 Gln Thr Phe Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe
 265 270 275

aat gca aag tac aca tat gga gca ttc tgt gtc aag aaa tgt cca cat 918
 Asn Ala Lys Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His
 280 285 290 295

aac ttt gtg gta gat tcc agt tct tgt gtg cgt gcc tgc cct agt tcc 966
 Asn Phe Val Val Asp Ser Ser Ser Cys Val Arg Ala Cys Pro Ser Ser
 300 305 310

aag atg gaa gta gaa gaa aat ggg att aaa atg tgt aaa cct tgc act 1014
 Lys Met Glu Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr
 315 320 325

gac att tgc cca aaa gct tgt gat ggc att ggc aca gga tca ttg atg 1062
 Asp Ile Cys Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met
 330 335 340

tca gct cag act gtg gat tcc agt aac att gac aaa ttc ata aac tgt 1110
 Ser Ala Gln Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys
 345 350 355

acc aag atc aat ggg aat ttg atc ttt cta gtc act ggt att cat ggg 1158
 Thr Lys Ile Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly
 360 365 370 375

gac cct tac aat gca att gaa gcc ata gac cca gag aaa ctg aac gtc 1206
 Asp Pro Tyr Asn Ala Ile Glu Ala Ile Asp Pro Glu Lys Leu Asn Val
 380 385 390

ttt cgg aca gtc aga gag ata aca ggt ttc ctg aac ata cag tca tgg 1254
 Phe Arg Thr Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp
 395 400 405

cca cca aac atg act gac ttc agt gtt ttt tct aac ctg gtg acc att 1302
 Pro Pro Asn Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile
 410 415 420

ggt gga aga gta ctc tat agt ggc ctg tcc ttg ctt atc ctc aag caa 1350
 Gly Gly Arg Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln
 425 430 435

cag ggc atc acc tct cta cag ttc cag tcc ctg aag gaa atc agc gca 1398
 Gln Gly Ile Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala
 440 445 450 455

gga aac atc tat att act gac aac agc aac ctg tgt tat tat cat acc 1446
 Gly Asn Ile Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr
 460 465 470

att aac tgg aca aca ctc ttc agc aca atc aac cag aga ata gta atc Ile Asn Trp Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile 475 480 485	1494
cgg gac aac aga aaa gct gaa aat tgt act gct gaa gga atg gtg tgc Arg Asp Asn Arg Lys Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys 490 495 500	1542
aac cat ctg tgt tcc agt gat ggc tgt tgg gga cct ggg cca gac caa Asn His Leu Cys Ser Ser Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln 505 510 515	1590
tgt ctg tgc tgt cgc cgc ttc agt aga gga agg atc tgc ata gag tct Cys Leu Ser Cys Arg Arg Phe Ser Arg Gly Arg Ile Cys Ile Glu Ser 520 525 530 535	1638
tgt aac ctc tat gat ggt gaa ttt cgg gag ttt gag aat ggc tcc atc Cys Asn Leu Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile 540 545 550	1686
tgt gtg gag tgt gac ccc cag tgt gag aag atg gaa gat ggc ctc ctc Cys Val Glu Cys Asp Pro Gln Cys Glu Lys Met Glu Asp Gly Leu Leu 555 560 565	1734
aca tgc cat gga ccg ggt cct gac aac tgt aca aag tgc tct cat ttt Thr Cys His Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe 570 575 580	1782
aaa gat ggc cca aac tgt gtg gaa aaa tgt cca gat ggc tta cag ggg Lys Asp Gly Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly 585 590 595	1830
gca aac agt ttc att ttc aag tat gct gat cca gat cgg gag tgc cac Ala Asn Ser Phe Ile Phe Lys Tyr Ala Asp Pro Asp Arg Glu Cys His 600 605 610 615	1878
cca tgc cat cca aac tgc acc caa ggg tgt aac ggt ccc act agt cat Pro Cys His Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His 620 625 630	1926
gac tgc att tac tac cca tgg acg ggc cat tcc act tta cca caa cat Asp Cys Ile Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His 635 640 645	1974
gct aga act ccc ctg att gca gct gga gta att ggt ggg ctc ttc att Ala Arg Thr Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile 650 655 660	2022
ctg gtc att gtg ggt ctg aca ttt gct gtt tat gtt aga agg aag agc Leu Val Ile Val Gly Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser 665 670 675	2070
atc aaa aag aaa aga gcc ttg aga aga ttc ttg gaa aca gag ttg gtg Ile Lys Lys Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val 680 685 690 695	2118
gaa cca tta act ccc agt ggc aca gca ccc aat caa gct caa ctt cgt Glu Pro Leu Thr Pro Ser Gly Thr Ala Pro Asn Gln Ala Gln Leu Arg 700 705 710	2166
att ttg aaa gaa act gag ctg aag agg gta aaa gtc ctt ggc tca ggt Ile Leu Lys Glu Thr Glu Leu Lys Arg Val Lys Val Leu Gly Ser Gly 715 720 725	2214
gct ttt gga acg gtt tat aaa ggt att tgg gta cct gaa gga gaa act Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp Val Pro Glu Gly Glu Thr 730 735 740	2262

gtg aag att cct gtg gct att aag att ctt aat gag aca act ggt ccc Val Lys Ile Pro Val Ala Ile Lys Ile Leu Asn Glu Thr Thr Gly Pro 745 750 755	2310
aag gca aat gtg gag ttc atg gat gaa gct ctg atc atg gca agt atg Lys Ala Asn Val Glu Phe Met Asp Glu Ala Leu Ile Met Ala Ser Met 760 765 770 775	2358
gat cat cca cac cta gtc cgg ttg ctg ggt gtg tgt ctg agc cca acc Asp His Pro His Leu Val Arg Leu Leu Gly Val Cys Leu Ser Pro Thr 780 785 790	2406
atc cag ctg gtt act caa ctt atg ccc cat ggc tgc ctg ttg gag tat Ile Gln Leu Val Thr Gln Leu Met Pro His Gly Cys Leu Leu Glu Tyr 795 800 805	2454
gtc cac gag cac aag gat aac att gga tca caa ctg ctg ctt aac tgg Val His Glu His Lys Asp Asn Ile Gly Ser Gln Leu Leu Leu Asn Trp 810 815 820	2502
tgt gtc cag ata gct aag gga atg atg tac ctg gaa gaa aga cga ctc Cys Val Gln Ile Ala Lys Gly Met Met Tyr Leu Glu Glu Arg Arg Leu 825 830 835	2550
gtt cat cgg gat ttg gca gcc cgt aat gtc tta gtg aaa tct cca aac Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn 840 845 850 855	2598
cat gtg aaa atc aca gat ttt ggg cta gcc aga ctc ttg gaa gga gat His Val Lys Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Glu Gly Asp 860 865 870	2646
gaa aaa gag tac aat gct gat gga gga aag atg cca att aaa tgg atg Glu Lys Glu Tyr Asn Ala Asp Gly Gly Lys Met Pro Ile Lys Trp Met 875 880 885	2694
gct ctg gag tgt ata cat tac agg aaa ttc acc cat cag agt gac gtt Ala Leu Glu Cys Ile His Tyr Arg Lys Phe Thr His Gln Ser Asp Val 890 895 900	2742
tgg agc tat gga gtt act ata tgg gaa ctg atg acc ttt gga gga aaa Trp Ser Tyr Gly Val Thr Ile Trp Glu Leu Met Thr Phe Gly Gly Lys 905 910 915	2790
ccc tat gat gga att cca acg cga gaa atc cct gat tta tta gag aaa Pro Tyr Asp Gly Ile Pro Thr Arg Glu Ile Pro Asp Leu Leu Glu Lys 920 925 930 935	2838
gga gaa cgt ttg cct cag cct ccc atc tgc act att gac gtt tac atg Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met 940 945 950	2886
gtc atg gtc aaa tgt tgg atg att gat gct gac agt aga cct aaa ttt Val Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe 955 960 965	2934
aag gaa ctg gct gct gag ttt tca agg atg gct cga gac cct caa aga Lys Glu Leu Ala Ala Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg 970 975 980	2982
tac cta gtt att cag ggt gat gat cgt atg aag ctt ccc agt cca aat Tyr Leu Val Ile Gln Gly Asp Asp Arg Met Lys Leu Pro Ser Pro Asn 985 990 995	3030
gac agc aag ttc ttt cag aat ctc ttg gat gaa gag gat ttg gaa Asp Ser Lys Phe Phe Gln Asn Leu Leu Asp Glu Glu Asp Leu Glu 1000 1005 1010	3075

gat atg atg gat gct gag	gag tac ttg gtc cct	cag gct ttc aac	3120
Asp Met Met Asp Ala Glu	Glu Tyr Leu Val Pro	Gln Ala Phe Asn	
1015	1020	1025	
atc cca cct ccc atc tat	act tcc aga gca aga	att gac tcg aat	3165
Ile Pro Pro Pro Ile Tyr	Thr Ser Arg Ala Arg	Ile Asp Ser Asn	
1030	1035	1040	
agg agt gaa att gga cac	agc cct cct cct gcc	tac acc ccc atg	3210
Arg Ser Glu Ile Gly His	Ser Pro Pro Pro Ala	Tyr Thr Pro Met	
1045	1050	1055	
tca gga aac cag ttt gta	tac cga gat gga ggt	ttt gct gct gaa	3255
Ser Gly Asn Gln Phe Val	Tyr Arg Asp Gly Gly	Phe Ala Ala Glu	
1060	1065	1070	
caa gga gtg tct gtg ccc	tac aga gcc cca act	agc aca att cca	3300
Gln Gly Val Ser Val Pro	Tyr Arg Ala Pro Thr	Ser Thr Ile Pro	
1075	1080	1085	
gaa gct cct gtg gca cag	ggg gct act gct gag	att ttt gat gac	3345
Glu Ala Pro Val Ala Gln	Gly Ala Thr Ala Glu	Ile Phe Asp Asp	
1090	1095	1100	
tcc tgc tgt aat ggc acc	cta cgc aag cca gtg	gca ccc cat gtc	3390
Ser Cys Cys Asn Gly Thr	Leu Arg Lys Pro Val	Ala Pro His Val	
1105	1110	1115	
caa gag gac agt agc acc	cag agg tac agt gct	gac ccc acc gtg	3435
Gln Glu Asp Ser Ser Thr	Gln Arg Tyr Ser Ala	Asp Pro Thr Val	
1120	1125	1130	
ttt gcc cca gaa cgg agc	cca cga gga gag ctg	gat gag gaa ggt	3480
Phe Ala Pro Glu Arg Ser	Pro Arg Gly Glu Leu	Asp Glu Glu Gly	
1135	1140	1145	
tac atg act cct atg cga	gac aaa ccc aaa caa	gaa tac ctg aat	3525
Tyr Met Thr Pro Met Arg	Asp Lys Pro Lys Gln	Glu Tyr Leu Asn	
1150	1155	1160	
cca gtg gag gag aac cct	ttt gtt tct cgg aga	aaa aat gga gac	3570
Pro Val Glu Glu Asn Pro	Phe Val Ser Arg Arg	Lys Asn Gly Asp	
1165	1170	1175	
ctt caa gca ttg gat aat	ccc gaa tat cac aat	gca tcc aat ggt	3615
Leu Gln Ala Leu Asp Asn	Pro Glu Tyr His Asn	Ala Ser Asn Gly	
1180	1185	1190	
cca ccc aag gcc gag gat	gag tat gtg aat gag	cca ctg tac ctc	3660
Pro Pro Lys Ala Glu Asp	Glu Tyr Val Asn Glu	Pro Leu Tyr Leu	
1195	1200	1205	
aac acc ttt gcc aac acc	ttg gga aaa gct gag	tac ctg aag aac	3705
Asn Thr Phe Ala Asn Thr	Leu Gly Lys Ala Glu	Tyr Leu Lys Asn	
1210	1215	1220	
aac ata ctg tca atg cca	gag aag gcc aag aaa	gcg ttt gac aac	3750
Asn Ile Leu Ser Met Pro	Glu Lys Ala Lys Lys	Ala Phe Asp Asn	
1225	1230	1235	
cct gac tac tgg aac cac	agc ctg cca cct cgg	agc acc ctt cag	3795
Pro Asp Tyr Trp Asn His	Ser Leu Pro Pro Arg	Ser Thr Leu Gln	
1240	1245	1250	
cac cca gac tac ctg cag	gag tac agc aca aaa	tat ttt tat aaa	3840
His Pro Asp Tyr Leu Gln	Glu Tyr Ser Thr Lys	Tyr Phe Tyr Lys	
1255	1260	1265	
cag aat ggg cgg atc cgg	cct att gtg gca gag	aat cct gaa tac	3885

Gln	Asn	Gly	Arg	Ile	Arg	Pro	Ile	Val	Ala	Glu	Asn	Pro	Glu	Tyr	
1270					1275					1280					
ctc	tct	gag	ttc	tcc	ctg	aag	cca	ggc	act	gtg	ctg	ccg	cct	cca	3930
Leu	Ser	Glu	Phe	Ser	Leu	Lys	Pro	Gly	Thr	Val	Leu	Pro	Pro	Pro	
1285					1290					1295					
cct	tac	aga	cac	cgg	aat	act	gtg	gtg	taa	gctcagttgt	ggtttttttag				3980
Pro	Tyr	Arg	His	Arg	Asn	Thr	Val	Val							
1300					1305										
gtggagagac	acacctgctc	caatttcccc	acccccctct	ctttctctgg	tggtcttcct										4040
tctaccccaa	ggccagtagt	tttgacactt	ccagtgga	gatacagaga	tgcaatgata										4100
gttatgtgct	tacctaactt	gaacattaga	gggaaagact	gaaagagaaa	gataggagga										4160
accacaatgt	ttcttcattt	ctctgcatgg	gttggctcagg	agaatgaaac	agctagagaa										4220
ggaccagaaa	atgtaaggca	atgctgccta	ctatcaaact	agctgtcact	ttttttcttt										4280
ttctttttct	ttctttgttt	ctttcttcct	cttctttttt	tttttttttt	ttaaagcagat										4340
ggttgaaaca	cccatgctat	ctgttcctat	ctgcaggaac	tgatgtgtgc	atatttagca										4400
tccctggaaa	tcataataaa	gtttccatta	gaacaaaaga	ataacatttt	ctataacata										4460
tgatagtgtc	tgaaattgag	aatccagttt	ctttccccag	cagtttctgt	cctagcaagt										4520
aagaatggcc	aactcaactt	tcataattta	aaaatctoca	ttaaagttat	aactagtaat										4580
tatgttttca	acactttttg	gtttttttca	ttttgttttg	ctctgaccga	ttcctttata										4640
tttgctcccc	tatttttggc	tttaatttct	aattgcaaag	atgtttacat	caaagcttct										4700
tcacagaatt	taagcaagaa	atattttaat	atagtgaat	ggccactact	ttaagtatac										4760
aatctttaaa	ataagaaagg	gaggctaata	tttttcatgc	tatcaaatta	tcttcaccct										4820
catcctttac	atttttcaac	attttttttt	ctccataaat	gacactactt	gataggccgt										4880
tggttgctctg	aagagtagaa	gggaaactaa	gagacagttc	tctgtgggtc	aggaaaacta										4940
ctgatacttt	caggggtggc	ccaatgaggg	aatccattga	actggaagaa	acacactgga										5000
ttgggtatgt	ctacctggca	gatactcaga	aatgtagttt	gcacttaagc	tgtaatttta										5060
tttgttcttt	ttctgaactc	cattttggat	tttgaatcaa	gcaatatgga	agcaaccagc										5120
aaattaacta	atttaagtac	atttttaaaa	aaagagctaa	gataaagact	gtggaaatgc										5180
caaaccaagc	aaattaggaa	ccttgcaacg	gtatccaggg	actatgatga	gaggccagca										5240
cattatcttc	atatgtcacc	tttgctacgc	aaggaaatth	gttcagttcg	tatacttcgt										5300
aagaaggaat	gcgagtaagg	attggcttga	attccatgga	atttctagta	tgagactatt										5360
tatatgaagt	agaaggtaac	tctttgcaca	taaattggta	taataaaaag	aaaaacacaa										5420
acattcaaag	cttagggata	ggtccttggg	tcaaaagttg	taaataaatg	tgaaacatct										5480
															5484
tctc															
<210>	19														
<211>	1308														
<212>	PRT														
<213>	Homo sapiens														

<400> 19

Met Lys Pro Ala Thr Gly Leu Trp Val Trp Val Ser Leu Leu Val Ala
 1 5 10 15

Ala Gly Thr Val Gln Pro Ser Asp Ser Gln Ser Val Cys Ala Gly Thr
 20 25 30

Glu Asn Lys Leu Ser Ser Leu Ser Asp Leu Glu Gln Gln Tyr Arg Ala
 35 40 45

Leu Arg Lys Tyr Tyr Glu Asn Cys Glu Val Val Met Gly Asn Leu Glu
 50 55 60

Ile Thr Ser Ile Glu His Asn Arg Asp Leu Ser Phe Leu Arg Ser Val
 65 70 75 80

Arg Glu Val Thr Gly Tyr Val Leu Val Ala Leu Asn Gln Phe Arg Tyr
 85 90 95

Leu Pro Leu Glu Asn Leu Arg Ile Ile Arg Gly Thr Lys Leu Tyr Glu
 100 105 110

Asp Arg Tyr Ala Leu Ala Ile Phe Leu Asn Tyr Arg Lys Asp Gly Asn
 115 120 125

Phe Gly Leu Gln Glu Leu Gly Leu Lys Asn Leu Thr Glu Ile Leu Asn
 130 135 140

Gly Gly Val Tyr Val Asp Gln Asn Lys Phe Leu Cys Tyr Ala Asp Thr
 145 150 155 160

Ile His Trp Gln Asp Ile Val Arg Asn Pro Trp Pro Ser Asn Leu Thr
 165 170 175

Leu Val Ser Thr Asn Gly Ser Ser Gly Cys Gly Arg Cys His Lys Ser
 180 185 190

Cys Thr Gly Arg Cys Trp Gly Pro Thr Glu Asn His Cys Gln Thr Leu
 195 200 205

Thr Arg Thr Val Cys Ala Glu Gln Cys Asp Gly Arg Cys Tyr Gly Pro
 210 215 220

Tyr Val Ser Asp Cys Cys His Arg Glu Cys Ala Gly Gly Cys Ser Gly
 225 230 235 240

Pro Lys Asp Thr Asp Cys Phe Ala Cys Met Asn Phe Asn Asp Ser Gly
 245 250 255

Ala Cys Val Thr Gln Cys Pro Gln Thr Phe Val Tyr Asn Pro Thr Thr

260	265	270
Phe Gln Leu Glu His Asn Phe Asn Ala Lys Tyr Thr Tyr Gly Ala Phe 275 280 285		
Cys Val Lys Lys Cys Pro His Asn Phe Val Val Asp Ser Ser Ser Cys 290 295 300		
Val Arg Ala Cys Pro Ser Ser Lys Met Glu Val Glu Glu Asn Gly Ile 305 310 315 320		
Lys Met Cys Lys Pro Cys Thr Asp Ile Cys Pro Lys Ala Cys Asp Gly 325 330 335		
Ile Gly Thr Gly Ser Leu Met Ser Ala Gln Thr Val Asp Ser Ser Asn 340 345 350		
Ile Asp Lys Phe Ile Asn Cys Thr Lys Ile Asn Gly Asn Leu Ile Phe 355 360 365		
Leu Val Thr Gly Ile His Gly Asp Pro Tyr Asn Ala Ile Glu Ala Ile 370 375 380		
Asp Pro Glu Lys Leu Asn Val Phe Arg Thr Val Arg Glu Ile Thr Gly 385 390 395 400		
Phe Leu Asn Ile Gln Ser Trp Pro Pro Asn Met Thr Asp Phe Ser Val 405 410 415		
Phe Ser Asn Leu Val Thr Ile Gly Gly Arg Val Leu Tyr Ser Gly Leu 420 425 430		
Ser Leu Leu Ile Leu Lys Gln Gln Gly Ile Thr Ser Leu Gln Phe Gln 435 440 445		
Ser Leu Lys Glu Ile Ser Ala Gly Asn Ile Tyr Ile Thr Asp Asn Ser 450 455 460		
Asn Leu Cys Tyr Tyr His Thr Ile Asn Trp Thr Thr Leu Phe Ser Thr 465 470 475 480		
Ile Asn Gln Arg Ile Val Ile Arg Asp Asn Arg Lys Ala Glu Asn Cys 485 490 495		
Thr Ala Glu Gly Met Val Cys Asn His Leu Cys Ser Ser Asp Gly Cys 500 505 510		
Trp Gly Pro Gly Pro Asp Gln Cys Leu Ser Cys Arg Arg Phe Ser Arg 515 520 525		

Gly Arg Ile Cys Ile Glu Ser Cys Asn Leu Tyr Asp Gly Glu Phe Arg
 530 535 540

Glu Phe Glu Asn Gly Ser Ile Cys Val Glu Cys Asp Pro Gln Cys Glu
 545 550 555 560

Lys Met Glu Asp Gly Leu Leu Thr Cys His Gly Pro Gly Pro Asp Asn
 565 570 575

Cys Thr Lys Cys Ser His Phe Lys Asp Gly Pro Asn Cys Val Glu Lys
 580 585 590

Cys Pro Asp Gly Leu Gln Gly Ala Asn Ser Phe Ile Phe Lys Tyr Ala
 595 600 605

Asp Pro Asp Arg Glu Cys His Pro Cys His Pro Asn Cys Thr Gln Gly
 610 615 620

Cys Asn Gly Pro Thr Ser His Asp Cys Ile Tyr Tyr Pro Trp Thr Gly
 625 630 635 640

His Ser Thr Leu Pro Gln His Ala Arg Thr Pro Leu Ile Ala Ala Gly
 645 650 655

Val Ile Gly Gly Leu Phe Ile Leu Val Ile Val Gly Leu Thr Phe Ala
 660 665 670

Val Tyr Val Arg Arg Lys Ser Ile Lys Lys Lys Arg Ala Leu Arg Arg
 675 680 685

Phe Leu Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Thr Ala
 690 695 700

Pro Asn Gln Ala Gln Leu Arg Ile Leu Lys Glu Thr Glu Leu Lys Arg
 705 710 715 720

Val Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile
 725 730 735

Trp Val Pro Glu Gly Glu Thr Val Lys Ile Pro Val Ala Ile Lys Ile
 740 745 750

Leu Asn Glu Thr Thr Gly Pro Lys Ala Asn Val Glu Phe Met Asp Glu
 755 760 765

Ala Leu Ile Met Ala Ser Met Asp His Pro His Leu Val Arg Leu Leu
 770 775 780

Gly Val Cys Leu Ser Pro Thr Ile Gln Leu Val Thr Gln Leu Met Pro
 785 790 795 800

His Gly Cys Leu Leu Glu Tyr Val His Glu His Lys Asp Asn Ile Gly
 805 810 815
 Ser Gln Leu Leu Leu Asn Trp Cys Val Gln Ile Ala Lys Gly Met Met
 820 825 830
 Tyr Leu Glu Glu Arg Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn
 835 840 845
 Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp Phe Gly Leu
 850 855 860
 Ala Arg Leu Leu Glu Gly Asp Glu Lys Glu Tyr Asn Ala Asp Gly Gly
 865 870 875 880
 Lys Met Pro Ile Lys Trp Met Ala Leu Glu Cys Ile His Tyr Arg Lys
 885 890 895
 Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr Ile Trp Glu
 900 905 910
 Leu Met Thr Phe Gly Gly Lys Pro Tyr Asp Gly Ile Pro Thr Arg Glu
 915 920 925
 Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile
 930 935 940
 Cys Thr Ile Asp Val Tyr Met Val Met Val Lys Cys Trp Met Ile Asp
 945 950 955 960
 Ala Asp Ser Arg Pro Lys Phe Lys Glu Leu Ala Ala Glu Phe Ser Arg
 965 970 975
 Met Ala Arg Asp Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp Asp Arg
 980 985 990
 Met Lys Leu Pro Ser Pro Asn Asp Ser Lys Phe Phe Gln Asn Leu Leu
 995 1000 1005
 Asp Glu Glu Asp Leu Glu Asp Met Met Asp Ala Glu Glu Tyr Leu
 1010 1015 1020
 Val Pro Gln Ala Phe Asn Ile Pro Pro Pro Ile Tyr Thr Ser Arg
 1025 1030 1035
 Ala Arg Ile Asp Ser Asn Arg Ser Glu Ile Gly His Ser Pro Pro
 1040 1045 1050
 Pro Ala Tyr Thr Pro Met Ser Gly Asn Gln Phe Val Tyr Arg Asp
 1055 1060 1065

Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro Gln Thr Phe	
245 250 255	
gtc tac aat cca acc acc ttt caa ctg gaa cac aac ttc aat gca aag	816
Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala Lys	
260 265 270	
tac acg tat gga gca ttc tgt gtt aag aaa tgt cca cat aac ttc gtg	864
Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His Asn Phe Val	
275 280 285	
gta gat tcc agt tct tgt gta cga gcc tgc cct agt tct aag atg gaa	912
Val Asp Ser Ser Ser Cys Val Arg Ala Cys Pro Ser Ser Lys Met Glu	
290 295 300	
gta gaa gaa aat ggg att aaa atg tgt aag cct tgc acc gat att tgc	960
Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr Asp Ile Cys	
305 310 315 320	
ccc aaa gca tgt gat gga atc ggc acg gga tca ctg atg tct gct cag	1008
Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met Ser Ala Gln	
325 330 335	
act gtg gat tca agt aac att gac aaa ttc ata aac tgc aca aag atc	1056
Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys Thr Lys Ile	
340 345 350	
aat ggc aat ctc atc ttt ctt gtc act ggc att cat gga gac cct tac	1104
Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly Asp Pro Tyr	
355 360 365	
aat gct att gac gcc ata gat cca gag aaa ctg aat gtc ttt cgg act	1152
Asn Ala Ile Asp Ala Ile Asp Pro Glu Lys Leu Asn Val Phe Arg Thr	
370 375 380	
gtc aga gaa ata aca ggt ttc ctg aac ata cag tct tgg ccc cca aat	1200
Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp Pro Pro Asn	
385 390 395 400	
atg aca gat ttc agt gtt ttc tcc aac ctc gtc aca att gga gga aga	1248
Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile Gly Gly Arg	
405 410 415	
gtc ctc tac agt ggt ctc tca ttg ctg atc ctc aaa caa caa ggt atc	1296
Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln Gln Gly Ile	
420 425 430	
act tcc cta cag ttc cag tct ctg aag gaa atc agt gcg ggc aat atc	1344
Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala Gly Asn Ile	
435 440 445	
tac atc act gac aac agc aac ctg tgt tat tac cat acc att aac tgg	1392
Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr Ile Asn Trp	
450 455 460	
aca aca ctc ttc agc acc att aac cag aga ata gtg atc cga gat aac	1440
Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp Asn	
465 470 475 480	
aga aga gct gag aat tgt act gct gaa ggc atg gta tgc aac cac ctg	1488
Arg Arg Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His Leu	
485 490 495	
tgt tca aat gat ggt tgt tgg gga cct ggg ccg gac cag tgc ctg tca	1536
Cys Ser Asn Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu Ser	
500 505 510	
tgt cgg cgc ttc agc agg gga aag atc tgc ata gag tct tgc aac ctt	1584

Gly Gly Phe Ala Ala Glu Gln Gly Val Ser Val Pro Tyr Arg Ala
 1070 1075 1080
 Pro Thr Ser Thr Ile Pro Glu Ala Pro Val Ala Gln Gly Ala Thr
 1085 1090 1095
 Ala Glu Ile Phe Asp Asp Ser Cys Cys Asn Gly Thr Leu Arg Lys
 1100 1105 1110
 Pro Val Ala Pro His Val Gln Glu Asp Ser Ser Thr Gln Arg Tyr
 1115 1120 1125
 Ser Ala Asp Pro Thr Val Phe Ala Pro Glu Arg Ser Pro Arg Gly
 1130 1135 1140
 Glu Leu Asp Glu Glu Gly Tyr Met Thr Pro Met Arg Asp Lys Pro
 1145 1150 1155
 Lys Gln Glu Tyr Leu Asn Pro Val Glu Glu Asn Pro Phe Val Ser
 1160 1165 1170
 Arg Arg Lys Asn Gly Asp Leu Gln Ala Leu Asp Asn Pro Glu Tyr
 1175 1180 1185
 His Asn Ala Ser Asn Gly Pro Pro Lys Ala Glu Asp Glu Tyr Val
 1190 1195 1200
 Asn Glu Pro Leu Tyr Leu Asn Thr Phe Ala Asn Thr Leu Gly Lys
 1205 1210 1215
 Ala Glu Tyr Leu Lys Asn Asn Ile Leu Ser Met Pro Glu Lys Ala
 1220 1225 1230
 Lys Lys Ala Phe Asp Asn Pro Asp Tyr Trp Asn His Ser Leu Pro
 1235 1240 1245
 Pro Arg Ser Thr Leu Gln His Pro Asp Tyr Leu Gln Glu Tyr Ser
 1250 1255 1260
 Thr Lys Tyr Phe Tyr Lys Gln Asn Gly Arg Ile Arg Pro Ile Val
 1265 1270 1275
 Ala Glu Asn Pro Glu Tyr Leu Ser Glu Phe Ser Leu Lys Pro Gly
 1280 1285 1290
 Thr Val Leu Pro Pro Pro Pro Tyr Arg His Arg Asn Thr Val Val
 1295 1300 1305

<210> 20
 <211> 3897
 <212> DNA
 <213> Mus musculus

```

<220>
<221> CDS
<222> (1)..(3897)

<400> 20
atg gca ata cca tca aga cgc aag gac tat cca aaa cta tct gaa atc      48
Met Ala Ile Pro Ser Arg Arg Lys Asp Tyr Pro Lys Leu Ser Glu Ile
1          5          10          15

aca gtg tgc gca gga aca gag aac aaa ctg agc tct ctc tct gac ctg      96
Thr Val Cys Ala Gly Thr Glu Asn Lys Leu Ser Ser Leu Ser Asp Leu
          20          25          30

gaa cag cag tac cga gcc ttg cgc aaa tac tat gaa aac tgc gag gta      144
Glu Gln Gln Tyr Arg Ala Leu Arg Lys Tyr Tyr Glu Asn Cys Glu Val
          35          40          45

gtc atg ggc aac ctg gag atc acc agc atc gag cac aac cgg gac ctc      192
Val Met Gly Asn Leu Glu Ile Thr Ser Ile Glu His Asn Arg Asp Leu
          50          55          60

tcc ttc ctg cgg tct atc cga gaa gtc aca ggc tac gtc ctg gtg gcc      240
Ser Phe Leu Arg Ser Ile Arg Glu Val Thr Gly Tyr Val Leu Val Ala
65          70          75          80

ctc aac cag ttt cgt tac ttg cct ctg gag aat tta cgc att att cgt      288
Leu Asn Gln Phe Arg Tyr Leu Pro Leu Glu Asn Leu Arg Ile Ile Arg
          85          90          95

ggg aca aaa cta tat gaa gat cgc tat gcc tta gcg ata ttc tta aac      336
Gly Thr Lys Leu Tyr Glu Asp Arg Tyr Ala Leu Ala Ile Phe Leu Asn
          100          105          110

tac agg aaa gat ggc aac ttt gga ctc caa gaa ctt gga tta aag aac      384
Tyr Arg Lys Asp Gly Asn Phe Gly Leu Gln Glu Leu Gly Leu Lys Asn
          115          120          125

ctg acc gaa ata cta aat ggt gga gtc tat gta gac cag aac aaa ttc      432
Leu Thr Glu Ile Leu Asn Gly Gly Val Tyr Val Asp Gln Asn Lys Phe
          130          135          140

cta tgt tat gct gac act ata cac tgg caa gat att gtt cgg aat cca      480
Leu Cys Tyr Ala Asp Thr Ile His Trp Gln Asp Ile Val Arg Asn Pro
          145          150          155          160

tgg cct tcc aac atg act ctg gtg tca aca aat gga agt tct gga tgt      528
Trp Pro Ser Asn Met Thr Leu Val Ser Thr Asn Gly Ser Ser Gly Cys
          165          170          175

gga aga tgc cat aag tct tgc act ggc cga tgc tgg gga ccc aca gaa      576
Gly Arg Cys His Lys Ser Cys Thr Gly Arg Cys Trp Gly Pro Thr Glu
          180          185          190

aat cac tgc cag acc ttg acc aga act gtg tgt gct gaa caa tgt gat      624
Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu Gln Cys Asp
          195          200          205

ggc agg tgc tat gga ccc tac gtt agt gac tgc tgc cat cga gaa tgt      672
Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His Arg Glu Cys
          210          215          220

gct gga ggc tgc tca gga cca aag gac act gac tgc ttt gcc tgc atg      720
Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe Ala Cys Met
          225          230          235          240

aac ttc aat gac agt gga gcc tgc gtt act caa tgt ccc caa aca ttt      768

```

Cys Arg Arg Phe Ser Arg Gly Lys Ile Cys Ile Glu Ser Cys Asn Leu	
515 520 525	
tat gat ggg gaa ttt cga gag ttt gaa aac ggc tcc atc tgt gtt gag	1632
Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val Glu	
530 535 540	
tgt gac tcc cag tgt gag aaa atg gaa gat gga ctc ctc aca tgc cat	1680
Cys Asp Ser Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys His	
545 550 555 560	
gga ccg gga cct gac aac tgc aca aag tgc tct cat ttt aag gat ggt	1728
Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp Gly	
565 570 575	
cca aac tgt gtg gag aaa tgt cca gat ggc cta cag gga gca aac agt	1776
Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn Ser	
580 585 590	
ttc att ttt aag tat gca gat cag gat cgg gag tgc cac cct tgc cat	1824
Phe Ile Phe Lys Tyr Ala Asp Gln Asp Arg Glu Cys His Pro Cys His	
595 600 605	
cca aac tgc acc cag ggg tgt aac ggt ccc act agt cat gac tgc att	1872
Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys Ile	
610 615 620	
tac tac cca tgg acg ggc cat tcc act tta cca caa cac gct aga act	1920
Tyr Tyr Pro Trp Thr His Ser Thr Leu Pro Gln His Ala Arg Thr	
625 630 635 640	
cca ctg att gca gcc gga gtc att gga ggc ctc ttc atc ctg gtg atc	1968
Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile Leu Val Ile	
645 650 655	
atg gct ttg aca ttt gct gtc tat gtc aga aga aag agc atc aaa aag	2016
Met Ala Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser Ile Lys Lys	
660 665 670	
aaa cgt gct ttg agg aga ttc ctg gag aca gag ctg gta gag ccc tta	2064
Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val Glu Pro Leu	
675 680 685	
act ccc agt ggc acg gca ccc aat caa gct caa ctt cgc att ttg aag	2112
Thr Pro Ser Gly Thr Ala Pro Asn Gln Ala Gln Leu Arg Ile Leu Lys	
690 695 700	
gaa acc gaa cta aag agg gta aag gtc ctt ggc tcg gga gct ttt gga	2160
Glu Thr Glu Leu Lys Arg Val Lys Val Leu Gly Ser Gly Ala Phe Gly	
705 710 715 720	
acc gtt tat aaa ggt att tgg gtg cct gaa ggt gaa aca gtg aaa atc	2208
Thr Val Tyr Lys Gly Ile Trp Val Pro Glu Gly Glu Thr Val Lys Ile	
725 730 735	
cct gtg gct ata aag atc ctc aat gaa aca act ggc ccc aaa gcc aac	2256
Pro Val Ala Ile Lys Ile Leu Asn Glu Thr Thr Gly Pro Lys Ala Asn	
740 745 750	
gtg gag ttc atg gat gag gct ctg atc atg gca agt atg gat cac cca	2304
Val Glu Phe Met Asp Glu Ala Leu Ile Met Ala Ser Met Asp His Pro	
755 760 765	
cac cta gtt cgc cta ttg gga gtg tgt ctg agt ccc act atc cag ttg	2352
His Leu Val Arg Leu Leu Gly Val Cys Leu Ser Pro Thr Ile Gln Leu	
770 775 780	
gtt acg cag ctg atg ccg cat ggc tgc cta ctg gac tat gtt cat gaa	2400

Val Thr Gln Leu Met Pro His Gly Cys Leu Leu Asp Tyr Val His Glu	
785 790 795 800	
cac aag gat aac att gga tca cag ctg ctg ttg aac tgg tgt gtc cag	2448
His Lys Asp Asn Ile Gly Ser Gln Leu Leu Leu Asn Trp Cys Val Gln	
805 810 815	
att gct aag gga atg atg tac cta gaa gaa aga cgg ctt gtt cat cgg	2496
Ile Ala Lys Gly Met Met Tyr Leu Glu Glu Arg Arg Leu Val His Arg	
820 825 830	
gat ctg gca gcc cgc aat gtc tta gtg aaa tct cca aat cat gtt aaa	2544
Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys	
835 840 845	
atc aca gat ttt gga ctg gcc cgg ctc ttg gaa gga gat gaa aaa gaa	2592
Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Glu Gly Asp Glu Lys Glu	
850 855 860	
tac aat gct gat ggt ggc aag atg cca att aaa tgg atg gct ctg gaa	2640
Tyr Asn Ala Asp Gly Lys Met Pro Ile Lys Trp Met Ala Leu Glu	
865 870 875 880	
tgt ata cat tat agg aaa ttc aca cat caa agt gat gtt tgg agc tat	2688
Cys Ile His Tyr Arg Lys Phe Thr His Gln Ser Asp Val Trp Ser Tyr	
885 890 895	
ggc gtc act ata tgg gaa ctg atg acc ttt gga gga aag ccc tat gat	2736
Gly Val Thr Ile Trp Glu Leu Met Thr Phe Gly Gly Lys Pro Tyr Asp	
900 905 910	
gga att cca acc cga gaa atc ccc gat tta ctg gag aaa gga gag cgt	2784
Gly Ile Pro Thr Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg	
915 920 925	
ctg cct cag cct ccc atc tgc act att gat gtt tac atg gtc atg gtc	2832
Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Val Met Val	
930 935 940	
aaa tgt tgg atg atc gat gct gac agc aga cct aaa ttc aaa gaa ctg	2880
Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Lys Glu Leu	
945 950 955 960	
gct gct gag ttt tca aga atg gct aga gac cct caa aga tac cta gtt	2928
Ala Ala Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Tyr Leu Val	
965 970 975	
att cag ggt gat gat cgt atg aag ctt ccc agt cca aat gac agc aaa	2976
Ile Gln Gly Asp Asp Arg Met Lys Leu Pro Ser Pro Asn Asp Ser Lys	
980 985 990	
ttc ttc cag aat ctc ttg gat gaa gag gat ttg gaa gac atg atg gat	3024
Phe Phe Gln Asn Leu Leu Asp Glu Glu Asp Leu Glu Asp Met Met Asp	
995 1000 1005	
gct gag gaa tat ttg gtc ccc cag gct ttc aac ata cct cct ccc	3069
Ala Glu Glu Tyr Leu Val Pro Gln Ala Phe Asn Ile Pro Pro Pro	
1010 1015 1020	
atc tac aca tcc aga aca aga att gac tcc aat agg agt gaa att	3114
Ile Tyr Thr Ser Arg Thr Arg Ile Asp Ser Asn Arg Ser Glu Ile	
1025 1030 1035	
gga cac agc cct cct cct gcc tac acc ccc atg tcg gga aat cag	3159
Gly His Ser Pro Pro Pro Ala Tyr Thr Pro Met Ser Gly Asn Gln	
1040 1045 1050	
ttt gtg tac caa gat ggg ggc ttt gct aca caa caa gga atg ccc	3204

Phe Val Tyr Gln Asp Gly Gly	Phe Ala Thr Gln Gln Gly Met Pro	
1055	1060	1065
atg ccc tac aga gcc aca acc	agc acc ata cca gag gct cca gta	3249
Met Pro Tyr Arg Ala Thr Thr	Ser Thr Ile Pro Glu Ala Pro Val	
1070	1075 1080	
gct cag ggt gca acg gct gag	atg ttt gat gac tcc tgc tgt aat	3294
Ala Gln Gly Ala Thr Ala Glu	Met Phe Asp Asp Ser Cys Cys Asn	
1085	1090 1095	
ggt acc cta cga aag cca gtg	gca ccc cat gtc caa gag gac agt	3339
Gly Thr Leu Arg Lys Pro Val	Ala Pro His Val Gln Glu Asp Ser	
1100	1105 1110	
agc act cag agg tat agt gct	gat ccc aca gtg ttc gcc cca gaa	3384
Ser Thr Gln Arg Tyr Ser Ser	Asp Pro Thr Val Phe Ala Pro Glu	
1115	1120 1125	
cgg aat cct cga gga gaa ctg	gat gaa gaa ggc tac atg act cca	3429
Arg Asn Pro Arg Gly Glu Leu	Asp Glu Glu Gly Tyr Met Thr Pro	
1130	1135 1140	
atg cat gac aag ccc aaa caa	gaa tat ctg aat cct gtg gaa gag	3474
Met His Asp Lys Pro Lys Gln	Glu Tyr Leu Asn Pro Val Glu Glu	
1145	1150 1155	
aac cct ttt gtg tcc cga agg	aag aat gga gat ctt caa gct tta	3519
Asn Pro Phe Val Ser Arg Arg	Lys Asn Gly Asp Leu Gln Ala Leu	
1160	1165 1170	
gat aat ccg gag tat cac agt	gct tcc agc ggt cca ccc aag gcg	3564
Asp Asn Pro Glu Tyr His Ser	Ala Ser Ser Gly Pro Pro Lys Ala	
1175	1180 1185	
gag gat gaa tac gtg aat gag	cct cta tac ctc aac acc ttc gcc	3609
Glu Asp Glu Tyr Val Asn Glu	Pro Leu Tyr Leu Asn Thr Phe Ala	
1190	1195 1200	
aat gcc ttg ggg agt gca gag	tac atg aaa aac agt gta ctg tct	3654
Asn Ala Leu Gly Ser Ala Glu	Tyr Met Lys Asn Ser Val Leu Ser	
1205	1210 1215	
gtg cca gag aaa gcc aag aaa	gca ttt gac aac ccc gac tac tgg	3699
Val Pro Glu Lys Ala Lys Lys	Ala Phe Asp Asn Pro Asp Tyr Trp	
1220	1225 1230	
aac cac agc ctg cca ccc cgg	agc acc ctt cag cac cca gac tac	3744
Asn His Ser Leu Pro Pro Arg	Ser Thr Leu Gln His Pro Asp Tyr	
1235	1240 1245	
ctg cag gaa tac agc aca aaa	tat ttt tat aaa cag aat gga cgg	3789
Leu Gln Glu Tyr Ser Thr Lys	Tyr Phe Tyr Lys Gln Asn Gly Arg	
1250	1255 1260	
atc cgc ccc att gtg gca gag	aat cct gag tac ctc tcg gag ttc	3834
Ile Arg Pro Ile Val Ala Glu	Asn Pro Glu Tyr Leu Ser Glu Phe	
1265	1270 1275	
tcg ctg aag cct ggc act atg	ctg ccc cct ccg ccc tac aga cac	3879
Ser Leu Lys Pro Gly Thr Met	Leu Pro Pro Pro Pro Tyr Arg His	
1280	1285 1290	
cgg aat act gtg gtg tga		3897
Arg Asn Thr Val Val		
1295		

<210> 21
 <211> 1298
 <212> PRT
 <213> Mus musculus

<400> 21

Met Ala Ile Pro Ser Arg Arg Lys Asp Tyr Pro Lys Leu Ser Glu Ile
 1 5 10 15

Thr Val Cys Ala Gly Thr Glu Asn Lys Leu Ser Ser Leu Ser Asp Leu
 20 25 30

Glu Gln Gln Tyr Arg Ala Leu Arg Lys Tyr Tyr Glu Asn Cys Glu Val
 35 40 45

Val Met Gly Asn Leu Glu Ile Thr Ser Ile Glu His Asn Arg Asp Leu
 50 55 60

Ser Phe Leu Arg Ser Ile Arg Glu Val Thr Gly Tyr Val Leu Val Ala
 65 70 75 80

Leu Asn Gln Phe Arg Tyr Leu Pro Leu Glu Asn Leu Arg Ile Ile Arg
 85 90 95

Gly Thr Lys Leu Tyr Glu Asp Arg Tyr Ala Leu Ala Ile Phe Leu Asn
 100 105 110

Tyr Arg Lys Asp Gly Asn Phe Gly Leu Gln Glu Leu Gly Leu Lys Asn
 115 120 125

Leu Thr Glu Ile Leu Asn Gly Gly Val Tyr Val Asp Gln Asn Lys Phe
 130 135 140

Leu Cys Tyr Ala Asp Thr Ile His Trp Gln Asp Ile Val Arg Asn Pro
 145 150 155 160

Trp Pro Ser Asn Met Thr Leu Val Ser Thr Asn Gly Ser Ser Gly Cys
 165 170 175

Gly Arg Cys His Lys Ser Cys Thr Gly Arg Cys Trp Gly Pro Thr Glu
 180 185 190

Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu Gln Cys Asp
 195 200 205

Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His Arg Glu Cys
 210 215 220

Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe Ala Cys Met
 225 230 235 240

Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro Gln Thr Phe
 245 250 255
 Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala Lys
 260 265 270
 Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His Asn Phe Val
 275 280 285
 Val Asp Ser Ser Ser Cys Val Arg Ala Cys Pro Ser Ser Lys Met Glu
 290 295 300
 Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr Asp Ile Cys
 305 310 315 320
 Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met Ser Ala Gln
 325 330 335
 Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys Thr Lys Ile
 340 345 350
 Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly Asp Pro Tyr
 355 360 365
 Asn Ala Ile Asp Ala Ile Asp Pro Glu Lys Leu Asn Val Phe Arg Thr
 370 375 380
 Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp Pro Pro Asn
 385 390 395 400
 Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile Gly Gly Arg
 405 410 415
 Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln Gln Gly Ile
 420 425 430
 Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala Gly Asn Ile
 435 440 445
 Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr Ile Asn Trp
 450 455 460
 Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp Asn
 465 470 475 480
 Arg Arg Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His Leu
 485 490 495
 Cys Ser Asn Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu Ser
 500 505 510

Cys Arg Arg Phe Ser Arg Gly Lys Ile Cys Ile Glu Ser Cys Asn Leu
 515 520 525
 Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val Glu
 530 535 540
 Cys Asp Ser Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys His
 545 550 555 560
 Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp Gly
 565 570 575
 Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn Ser
 580 585 590
 Phe Ile Phe Lys Tyr Ala Asp Gln Asp Arg Glu Cys His Pro Cys His
 595 600 605
 Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys Ile
 610 615 620
 Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His Ala Arg Thr
 625 630 635 640
 Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile Leu Val Ile
 645 650 655
 Met Ala Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser Ile Lys Lys
 660 665 670
 Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val Glu Pro Leu
 675 680 685
 Thr Pro Ser Gly Thr Ala Pro Asn Gln Ala Gln Leu Arg Ile Leu Lys
 690 695 700
 Glu Thr Glu Leu Lys Arg Val Lys Val Leu Gly Ser Gly Ala Phe Gly
 705 710 715 720
 Thr Val Tyr Lys Gly Ile Trp Val Pro Glu Gly Glu Thr Val Lys Ile
 725 730 735
 Pro Val Ala Ile Lys Ile Leu Asn Glu Thr Thr Gly Pro Lys Ala Asn
 740 745 750
 Val Glu Phe Met Asp Glu Ala Leu Ile Met Ala Ser Met Asp His Pro
 755 760 765
 His Leu Val Arg Leu Leu Gly Val Cys Leu Ser Pro Thr Ile Gln Leu
 770 775 780

Val Thr Gln Leu Met Pro His Gly Cys Leu Leu Asp Tyr Val His Glu
 785 790 795 800
 His Lys Asp Asn Ile Gly Ser Gln Leu Leu Leu Asn Trp Cys Val Gln
 805 810 815
 Ile Ala Lys Gly Met Met Tyr Leu Glu Glu Arg Arg Leu Val His Arg
 820 825 830
 Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys
 835 840 845
 Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Glu Gly Asp Glu Lys Glu
 850 855 860
 Tyr Asn Ala Asp Gly Gly Lys Met Pro Ile Lys Trp Met Ala Leu Glu
 865 870 875 880
 Cys Ile His Tyr Arg Lys Phe Thr His Gln Ser Asp Val Trp Ser Tyr
 885 890 895
 Gly Val Thr Ile Trp Glu Leu Met Thr Phe Gly Gly Lys Pro Tyr Asp
 900 905 910
 Gly Ile Pro Thr Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg
 915 920 925
 Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Val Met Val
 930 935 940
 Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Lys Glu Leu
 945 950 955 960
 Ala Ala Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Tyr Leu Val
 965 970 975
 Ile Gln Gly Asp Asp Arg Met Lys Leu Pro Ser Pro Asn Asp Ser Lys
 980 985 990
 Phe Phe Gln Asn Leu Leu Asp Glu Glu Asp Leu Glu Asp Met Met Asp
 995 1000 1005
 Ala Glu Glu Tyr Leu Val Pro Gln Ala Phe Asn Ile Pro Pro Pro
 1010 1015 1020
 Ile Tyr Thr Ser Arg Thr Arg Ile Asp Ser Asn Arg Ser Glu Ile
 1025 1030 1035
 Gly His Ser Pro Pro Pro Ala Tyr Thr Pro Met Ser Gly Asn Gln
 1040 1045 1050

Phe Val Tyr Gln Asp Gly Gly Phe Ala Thr Gln Gln Gly Met Pro
 1055 1060 1065
 Met Pro Tyr Arg Ala Thr Thr Ser Thr Ile Pro Glu Ala Pro Val
 1070 1075 1080
 Ala Gln Gly Ala Thr Ala Glu Met Phe Asp Asp Ser Cys Cys Asn
 1085 1090 1095
 Gly Thr Leu Arg Lys Pro Val Ala Pro His Val Gln Glu Asp Ser
 1100 1105 1110
 Ser Thr Gln Arg Tyr Ser Ala Asp Pro Thr Val Phe Ala Pro Glu
 1115 1120 1125
 Arg Asn Pro Arg Gly Glu Leu Asp Glu Glu Gly Tyr Met Thr Pro
 1130 1135 1140
 Met His Asp Lys Pro Lys Gln Glu Tyr Leu Asn Pro Val Glu Glu
 1145 1150 1155
 Asn Pro Phe Val Ser Arg Arg Lys Asn Gly Asp Leu Gln Ala Leu
 1160 1165 1170
 Asp Asn Pro Glu Tyr His Ser Ala Ser Ser Gly Pro Pro Lys Ala
 1175 1180 1185
 Glu Asp Glu Tyr Val Asn Glu Pro Leu Tyr Leu Asn Thr Phe Ala
 1190 1195 1200
 Asn Ala Leu Gly Ser Ala Glu Tyr Met Lys Asn Ser Val Leu Ser
 1205 1210 1215
 Val Pro Glu Lys Ala Lys Lys Ala Phe Asp Asn Pro Asp Tyr Trp
 1220 1225 1230
 Asn His Ser Leu Pro Pro Arg Ser Thr Leu Gln His Pro Asp Tyr
 1235 1240 1245
 Leu Gln Glu Tyr Ser Thr Lys Tyr Phe Tyr Lys Gln Asn Gly Arg
 1250 1255 1260
 Ile Arg Pro Ile Val Ala Glu Asn Pro Glu Tyr Leu Ser Glu Phe
 1265 1270 1275
 Ser Leu Lys Pro Gly Thr Met Leu Pro Pro Pro Pro Tyr Arg His
 1280 1285 1290
 Arg Asn Thr Val Val
 1295

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/04968

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/00; G01N 33/53; A61K 38/00; C07K 1/00, 2/00, 4/00, 5/00, 7/00, 14/00, 16/00, 17/00
US CL : 435/4, 7.1; 530/300, 350, 385, 386, 387.1, 387.3; 436/64, 86

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/4, 7.1; 530/300, 350, 385, 386, 387.1, 387.3; 436/64, 86

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
West and Medline

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROBERTS, R.B. et al. Modeling the cancer pateint with genetically engineered mice: prediction of toxicity from molecule-targeted therapies. February 2004, Vol 5, pages 115-120.	1-28



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

30 August 2005 (30.08.2005)

Date of mailing of the international search report

27 JAN 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Alana M. Harris, Ph.D.

Telephone No. 571-272-1600